

lady's mantle *Alchemilla mollis* (Buser) Rothm.

hairy lady's mantle *Alchemilla monticola* Opiz

Introduction: Lady's mantle and hairy lady's mantle share very similar biological and ecological attributes. For this reason, discussions of their descriptions, ecological impacts, biological traits, legal listings, distributions, and control methods are combined.

Synonym for *Alchemilla mollis*: *Alchemilla acutiloba* var. *mollis* Buser
Other common name: giant lady's mantle

Synonyms for *Alchemilla monticola*: *Alchemilla gracilis* Opiz, *A. opizii* Hadac, *A. pascualis* S. E. Fröhner, *A. pastoralis* Buser, *A. pratensis* auct. non F. W. Schmidt, *A. vulgaris* ssp. *monticola* (Opiz) Soó, *A. vulgaris* ssp. *pastoralis* (Buser) Murb., *A. vulgaris* var. *pastoralis* (Buser) B. Boivin, *A. vulgaris* ssp. *silvestris* (F. W. Schmidt) Camus, *A. vulgaris* var. *silvestris* F. W. Schmidt
Other common name: mountain lady's mantle

Family: Rosaceae

Invasiveness Rank: 56 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

Lady's mantle is a perennial plant that grows 20 to 80 cm tall. Plants are densely hairy except on the pedicels, which are glabrous. Stems are ascending to erect. Leaves are circular, grey-green, up to 10 cm wide, and palmately lobed with 9 to 11 lobes each. Each lobe has 15 to 19 inwardly curved, slightly pointed teeth. The space between basal lobes on either side of the petiole is wide. Flowers are arranged in loose, spreading cymes at the ends of stems. They lack petals and are yellow green, star-shaped, and up to 6 mm wide. Hips (hypanthia) are sparsely hairy and contain small, ovoid seeds (Perry 1999, Stace et al. 2005, Bojňanský and Fargašová 2007, Aniško 2008, Kahtz 2008).

Hairy lady's mantle looks similar to lady's mantle but differs by the following features. Stems are up to 50 cm tall. Teeth on the leaf margins are more pointed. The space between basal lobes on either side of the petiole is narrow or closed. Upper inflorescence branches and pedicels are glabrous. Hips are glabrous to sparsely hairy (Stace et al. 2005, Bojňanský and Fargašová 2007).



Inflorescences and foliage of *Alchemilla mollis* (Buser) Rothm. Photo by The Dow Gardens Archive.



Inflorescences and foliage of *Alchemilla monticola* Opiz. Photo by J. Maunder.

Similar species: No other species in Alaska can be easily confused with lady's mantle or hairy lady's mantle.



Alchemilla infestation under an alder canopy near a roadside in Hoonah, AK. Photo by B. Kriekhaus.

Ecological Impact

Impact on community composition, structure, and interactions: Lady's mantle can form dense monocultures in leaf litter under alder canopies (Kriekhaus pers. comm.), suggesting that it has the potential to increase the density of herbaceous ground layers. Infestations can reduce the amount of light that reaches the ground by more than 80%, preventing the establishment of native plant species (Eom et al. 2005). The impacts of lady's mantle on associated trophic levels are unknown.

Impact on ecosystem processes: Lady's mantle can form

dense patches (Eom et al. 2005) and likely reduces the availability of soil nutrients and moisture. However, the impacts of this species on natural ecosystem processes are largely undocumented.

Biology and Invasive Potential

Reproductive potential: Lady's mantle reproduces asexually by unfertilized seeds and can be propagated from root fragments (Eom et al. 2005, NatureGate 2011). Seed production is prolific (Stace et al. 2005, Mahr 2010). The number of seeds produced per plant and the amount of time seeds remain viable in the soil have not been quantified.

Role of disturbance in establishment: In Finland, *Alchemilla* species grow in open or semi-open, often human-influenced habitats (NatureGate 2011). In Britain, hairy lady's mantle frequently grows in road edges (PlantNetwork 2011). Most infestations of lady's mantle recorded in Alaska are associated with disturbed areas (AKEPIC 2011), suggesting that disturbances favor the establishment of this species. However, lady's mantle has been observed spreading into leaf litter under a dense canopy of Sitka alder in Hoonah, AK (Kriekhaus pers. comm.).

Potential for long-distance dispersal: Seeds are ovoid, 1.1 to 1.4 mm long, and 0.7 to 1 mm wide. They lack specific adaptations for dispersal (Bojňanský and Fargašová 2007). During a two year experiment in which lady's mantle was grown outside in New York, this species did not invade new areas (Eom et al. 2005). However, this species has spread from a roadside to at least 6 m into a dense stand of Sitka alder in Hoonah, AK (Kriekhaus pers. comm.).

Potential to be spread by human activity: Lady's mantle is cultivated as an ornamental plant in gardens and as a ground cover (Perry 1999, Eom et al. 2005, Mahr 2010, Robert W. Freckmann Herbarium 2011). It has been observed spreading from a planted container into surrounding lawn in Gustavus, Alaska (Rapp 2009). Hairy lady's mantle rarely escapes cultivation (Robert W. Freckmann Herbarium 2011).

Germination requirements: Seeds germinate readily after maturation, but they require cold stratification if they do not germinate immediately (Perry 1999).

Growth requirements: Lady's mantle grows well in regions with cool summers in moist, fertile soils. It can grow in full sunlight, but in warm regions it grows better in shade (Aniško 2008, Kahtz 2008).

Congeneric weeds: Smooth lady's mantle (*Alchemilla glabra*), broadtooth lady's mantle (*A. subcrenata*), and clustered lady's mantle (*A. venosa*) are known to occur as non-native species in North America but are not considered weeds (USDA 2011).

Legal Listings

- Has not been declared noxious
- Listed noxious in Alaska

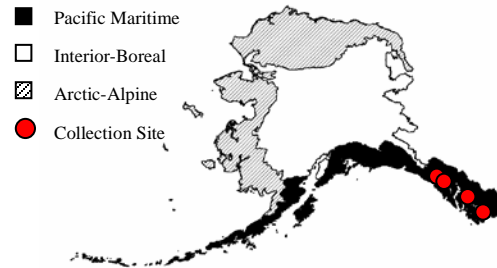
- Listed noxious by other states
- Federal noxious weed
- Listed noxious in Canada or other countries

Distribution and Abundance

Lady's mantle is cultivated as a ground cover and an ornamental plant in gardens (Perry 1999, Eom et al. 2005, Mahr 2010, Robert W. Freckmann Herbarium 2011). It has also been grown as a medicinal herb (Perry 1999, Mahr 2010).

Native and current distribution: Lady's mantle is native to Turkey and the Carpathian mountains (Perry 1999, Bojňanský and Fargašová 2007). It has been introduced to Europe, Asia Minor, North Africa, and North America (Gardner 1998, Staatliche Naturwissenschaftliche Sammlungen Bayerns 2010, USDA 2011). It grows in Alaska, Connecticut, Massachusetts, Maine, New York, Vermont, and Wisconsin. It also grows in eastern Canada (USDA 2011). This species has not been documented from arctic regions. Hairy lady's mantle is native to Europe and Siberia (Bojňanský and Fargašová 2007). It also grows in North America (USDA 2011). This species has been documented from arctic regions in Norway and in

the Province of Murmansk, Russia (Real Jardin Botanico 2010, Vascular Plant Herbarium Oslo 2010). Lady's mantle has been documented from the Pacific Maritime ecogeographic region of Alaska (AKEPIC 2010). Hairy lady's mantle has not been documented from Alaska.



Distribution of lady's mantle in Alaska

Management

Plants can be removed from gardens manually (Mahr 2010), taking care to remove all root fragments (Eom et al. 2005). However, control methods for lady's mantle are largely undocumented.

References:

- AKEPIC database. Alaska Exotic Plant Information Clearinghouse Database. 2011. Available: <http://akweeds.uaa.alaska.edu/>
- Aniško, T. 2008. When Perennials Bloom: An Almanac for Planning and Planting. Timber Press, Inc. Portland, OR. 510 p.
- Bojňanský, V., and A. Fargašová. 2007. Atlas of Seeds and Fruits of Central and East-European Flora: The Carpathian Mountains Region. Springer. Dordrecht, The Netherlands. 1046 p.
- Eom, S., A. Senesac, I. Tsontakis-Bradley, and L. Weston. 2005. Evaluation of Herbaceous Perennials as Weed Suppressive Groundcovers for Use Along Roadsides or in Landscapes. Journal of Environmental Horticulture. 23(4). 198-203 p.
- Gardner, J. 1998. Herbs in Bloom: A Guide to Growing Herbs as Ornamental Plants. Timber Press, Inc. Portland, OR. 395 p.
- Kahtz, A. 2008. Perennials for Midwestern Gardeners: Proven Plants for the Heartland. Timber Press, Inc. Portland, OR. 228 p.
- Kriekhaus, B., Biologist, Tongass National Forest, Forest Service, U.S. Department of Agriculture, 204 Siginaka Way, Sitka, Alaska, 99835. Tel: (907) 747-4242 – pers. comm.
- Mahr, S. 2010. Lady's Mantle, *Alchemilla mollis*. The Wisconsin Master Gardeners Program, University of Wisconsin Cooperative Extension. Madison, WI. [12 January 2011]
- http://wimastergardener.org/?q=Alchemilla_mollis
- NatureGate. 2011. Finland Nature and Species. Helsinki, Finland. [12 January 2011] Available: <http://www.luontoportti.com/suomi/en/>
- Perry, L. 1999. Perennial Plant of the Month. *Alchemilla mollis*. Department of Plant and Soil Science, University of Vermont Extension. [12 January 2011] <http://www.uvm.edu/pss/ppp/jan99per.html>
- PlantNetwork. 2011. *Alchemilla monticola* Opiz. The Plant Collections Network of Britain and Ireland. Cambridge, England. [12 January 2011] <http://www.plantnetwork.org/projects/datasheet/s/alchmont.pdf>
- Rapp, W. 2009. Invasive Plant Management in Glacier Bay National Park and Preserve. Summer 2009 Field Season Report. Invasive Species Program, Glacier Bay National Park and Preserve, National Park Service, U.S. Department of the Interior. Gustavus, AK. 164 p.
- Real Jardin Botanico. 2010. Accessed through GBIF (Global Biodiversity Information Facility) data portal (<http://data.gbif.org/datasets/resource/240>, 2011-01-12) Vascular Plant Herbarium, Real Jardin Botanico. Madrid, Spain.
- Robert W. Freckmann Herbarium. 2011. *Alchemilla monticola* Opiz. University of Wisconsin.

- Stevens Point, WI. [12 January 2011]
<http://wisplants.uwsp.edu/index.html>
- Staatliche Naturwissenschaftliche Sammlungen Bayerns. 2010. Accessed through GBIF (Global Biodiversity Information Facility) data portal (<http://data.gbif.org/datasets/resource/11998>, 2011-01-12). The Vascular Plant Collection at the Herbarium MSB, Universität München. München, Germany.
- Stace, C., R. van der Meijden, and I. de Kort. 2005. Interactive Flora of NW Europe. World Biodiversity Database.
<http://nlbif.eti.uva.nl/bis/flora.php>
- USDA. 2011. The PLANTS Database. National Plant Data Center, Natural Resources Conservation Service, United States Department of Agriculture. Baton Rouge, LA.
<http://plants.usda.gov>
- Vascular Plant Herbarium, Oslo. 2010. Accessed through GBIF (Global Biodiversity Information Facility) data portal (<http://data.gbif.org/datasets/resource/1078>, 2011-01-12). Natural History Museum, University of Oslo. Oslo, Norway.