

Goutweed

Aegopodium podagraria L.

Carrot family (Apiaceae, formerly Umbelliferae)

NATIVE RANGE

Most of Europe and northern Asia, to eastern Siberia

DESCRIPTION

Goutweed, also known as bishop's-weed and snow-on-the-mountain, is an herbaceous perennial plant. It is one of several species of *Aegopodium*, native to Europe and Asia. Most leaves are basal, with the leafstalk attached to an underground stem, or rhizome. The leaves are divided into three groups of three leaflets, making it "triterminate." The leaflets are toothed and sometimes irregularly lobed. Foliage of the "wild" type is medium green in color; a commonly planted variegated form has bluish-green leaves with creamy white edges. Sometimes reversion back to solid green or a mixture of solid green and the lighter variegated pattern occurs within a patch.

Small, white, five-petaled flowers are produced in mid-summer. Flowers are arranged in flat-topped clusters (called compound umbels) and are held above the ground on a leafy stem up to about 3 feet tall. The seeds are small and elongate, similar in size and shape to carrot seeds, and ripen in late summer. In contrast to the dense foliage cover produced by goutweed, flowering shoots are uncommon in densely shaded areas.



The rhizomes of goutweed are long, white, and branching, superficially resembling those of quackgrass (*Elytrigia repens*, also known as *Agropyron repens*). Patches of goutweed typically form a dense canopy and can exclude most other herbaceous vegetation. Because of this, it is often used as a low-maintenance ground cover.

ECOLOGICAL THREAT

Goutweed is an aggressive invasive plant that forms dense patches, displaces native species, and greatly reduces species diversity in the ground layer. Goutweed patches inhibit the establishment of conifers and other native tree species as well.

**DISTRIBUTION IN THE UNITED STATES**

Goutweed is currently known to occur in twenty-nine states in the mid-Atlantic, Northeast and Northwest (USDA PLANTS) and is reported to be invasive in natural areas in Connecticut, Michigan, New Jersey, Pennsylvania, Vermont, and Wisconsin (WeedUS Database).

HABITAT IN THE UNITED STATES

Goutweed is an ecologically versatile species. It is found in old gardens and flowerbeds, around shrubs and other plantings, and in a variety of other disturbed habitats such as felled forests, abandoned fields, and pastures. In Eurasia, goutweed is primarily a species of deciduous and southern boreal forests, and it expands aggressively in similar habitats in North America. Goutweed appears to do best on moist soil and in light to moderate shade, but is highly shade-tolerant and capable of invading closed-canopy forests.

BACKGROUND

Goutweed was apparently first brought to North America as an ornamental during the early stages of European settlement and was well established in the U.S. by 1863. In parts of Russia, the leaves are sometimes used as a salad ingredient and potherb in the spring.

BIOLOGY & SPREAD

Goutweed is vigorous, rhizomatous perennial that spreads mainly by vegetative means. Patches increase in size through extension of the rhizome system. The flowers are pollinated by a wide variety of insects, including beetles, bees, and especially small flies. The seeds have no apparent morphological features that would facilitate dispersal. Goutweed seeds require cold stratification to germinate. While established goutweed plants are highly competitive in shaded environments, seedlings generally need recently disturbed soil and rather bright light in order to survive. Goutweed apparently does not form a long-lived seed bank, and the seeds generally germinate the year after ripening. Establishment of goutweed seedlings in the shade is rare. The primary vector for dispersal to new areas is humans. Most goutweed colonies spread to neighboring natural areas from intentional plantings, or by the dumping of yard waste that includes discarded rhizomes.



MANAGEMENT OPTIONS

A variety of methods are available for controlling goutweed, depending on the extent of the infestation and the amount of time and labor available. Regardless of the control method used, the patch should be carefully monitored periodically for a few years. New shoots should be dug up and destroyed. Once goutweed control has been achieved, revegetation with native or non-invasive exotic plant materials is recommended. This is particularly important on sites where erosion is a concern or where other invasive species are likely to colonize the site if left alone.

Biological

There are no biological control organisms currently available for *Aegopodium podagraria* in North America.

Chemical

Systemic herbicides such as glyphosate (Roundup®) that are translocated to the roots and kill the entire plant are most effective for goutweed control. However, glyphosate is non-specific and can damage or kill desirable native plants that are accidentally sprayed in the course of treating the goutweed. Contact herbicides are usually ineffective because goutweed readily leafs out again after defoliation.

Manual

Small patches of goutweed can be eliminated by careful and persistent hand-pulling or digging up of entire plants along with underground stems (rhizomes). Pulled plants can be piled up and allowed to dry for a few days before bagging and disposing of them. Be careful to pick up all rhizomes which, if left behind, can reroot and sprout new plants. For large patches, a team of volunteers or use of herbicide is recommended.

Mechanical

Where appropriate, frequent short mowing may control or slow the spread of goutweed in lawns, along roadsides, and other areas.

Physical

Preventing goutweed from photosynthesizing in early spring (at the time of leaf-out) can control the plant by depleting its carbohydrate reserves. This can be accomplished by covering the patch with black plastic sheeting when the leaves start to emerge from the ground in the spring, and leaving it in place through the summer. A more effective option is to cut all plants once they've fully leafed out, using a mower, scythe, or weed-whacker type machine, and then cover the area with plastic. Covering the plants in mid- or late summer, after they have regained substantial starch reserves, is probably much less effective.

USE PESTICIDES WISELY: Always read the entire pesticide label carefully, follow all mixing and application instructions and wear all recommended personal protective gear and clothing. Contact your state department of agriculture for any additional pesticide use requirements, restrictions or recommendations.

NOTICE: mention of pesticide products on this page does not constitute endorsement of any material.

CONTACTS

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SUGGESTED ALTERNATIVE PLANTS

Contact your local native plant society for other species suitable for your area (<http://www.nps.gov/plants>).

OTHER LINKS

- <http://www.lib.uconn.edu/webapps/ipane/browsing.cfm?descriptionid=34>

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REFERENCES

- Bailey, W.W. 1987. Journal of the Torrey Botanical Society. Vol. 3: 176.
- Borg-Karlson, A. K., I. Valterova, and L. A. Nilsson. 1994. Volatile compounds of flowers of six species in the family Apiaceae: bouquets for different pollinators? *Phytochemistry (Oxford)* 35: 111-118.
- Dlussky, G. M. 1998. Mechanisms of competition for pollinators in *Anthriscus sylvestris* Hoffm. and *Aegopodium podagraria* L. (Apiaceae). *Zhurnal Obshchei Biologii* 59: 24-44.
- Everett, T. H. 1981. The New York Botanical Garden illustrated encyclopedia of horticulture. Vol. 1. A-Be. Garland Publishing Inc., New York.
- Gatsuk, L. E., O. V. Smirnova, L. I. Vorontzova, L. B. Zaugolnova, and L. A. Zhukova. 1980. Age states of plants of various growth forms: a review. *Journal of Ecology* 68: 675-696.
- Gleason, H. A., and A. Cronquist. 1991. Manual of vascular plants of northeastern United States and adjacent Canada, 2nd ed. New York Botanical Garden, New York.
- Grime, J. P., J. G. Hodges, and R. Hunt. 1988. Comparative plant ecology. Unwin Hyman, London.
- Jansson, O. 1974. Phylloquinone (vitamin K1) levels in leaves of plant species differing in susceptibility to 2,4-dichlorophenoxyacetic acid. *Physiologia Plantarum* 31: 323-325.
- Meyer, K., and F. H. Hellwig. 1997. Annual cycle of starch content in rhizomes of the forest geophytes *Anemone nemorosa* and *Aegopodium podagraria*. *Flora (Jena)* 192: 335-339.
- Shishkin, B. K. (ed.). 1950. Flora of the USSR. Volume XVI-Umbelliflorae. Botanical Institute of the Academy of Sciences of the USSR. (Translated from Russian by Israel Program for Scientific Translations, Jerusalem, 1973.)

Small, E. 1973. Photosynthetic ecology of normal and variegated *Aegopodium podagraria*. Canadian Journal of Botany 51: 1589-1592.

Swearingen, J. 2004. WeedUS: Database of Invasive Plants Affecting Natural Areas in the U.S. (In progress)
<http://www.nps.gov/plants/alien>

Tutin, T. G., V. H. Heywood, N. A. Burges, D. M. Moore, D. H. Valentine, S. M. Walker, and D. A. Webb (eds.) 1968. Flora Europaea, Vol. 2. Cambridge University Press, Cambridge.