



## Common Mullein

*Verbascum thapsus* L.

Figwort family (Scrophulariaceae)

### NATIVE RANGE

Europe and Asia

### DESCRIPTION

Common mullein, also known as woolly mullein, is an erect herb. First year mullein plants are low-growing rosettes of bluish gray-green, feltlike leaves that range from 4-12 inches in length and 1-5 inches in width. Mature flowering plants are produced the second year, and grow to 5 to 10 feet in height, including the conspicuous flowering stalk. The five-petaled yellow flowers are arranged in a leafy spike and bloom a few at a time from June-August. Leaves alternate along the flowering stalks and are much larger toward the base of the plant. The tiny seeds are pitted and rough with wavy ridges and deep grooves and can germinate after lying dormant in the soil for several decades.



### ECOLOGICAL THREAT

Common mullein threatens natural meadows and forest openings, where it adapts easily to a wide variety of site conditions. Once established, it grows more vigorously than many native herbs and shrubs, and its growth can overtake a site in fairly short order. Common mullein is a prolific seeder and its seeds last a very long time in the soil. An established population of common mullein can be extremely difficult to eradicate.



### DISTRIBUTION IN THE UNITED STATES

Common mullein was first introduced into the U.S. in the mid-1700's, where it was used as a piscicide, or fish poison, in Virginia. It quickly spread throughout the U.S. and is well established throughout the eastern states. Records show that it was first described in Michigan in 1839 and on the Pacific coast in 1876, probably due to multiple introductions as a medicinal herb.

### HABITAT IN THE UNITED STATES

Common mullein can be found where mean annual precipitation is greater than 3-6 inches and the growing season lasts for a minimum of 140 days. Intolerant of shade, mullein will grow in almost any open area including natural meadows

and forest openings as well as neglected pastures, road cuts, industrial areas. Common mullein prefers, but is not limited to, dry sandy soils.

### BACKGROUND

Common mullein is a monocarpic perennial (i.e., takes two or more years to flower and die). Brought over from Europe by settlers, it was used as a medicinal herb, as a remedy for coughs and diarrhea and a respiratory stimulant for the lungs when smoked. A methanol extract from common mullein has been used as an insecticide for mosquito larvae.

### BIOLOGY & SPREAD

During the first summer after germination mullein produces a tap root and a rosette of leaves. During this vegetative stage, the rosette increases in size during the growing season until low temperatures arrest growth sometime during the autumn and winter. Beginning the next spring, second year plants bolt into maturity, flower, produce seed during the summer, and then die, completing the plant's normal life cycle. Flowers mature from the base to the tip of the stalk. The length of the flowering period is a function of stalk height; longer stalks can continue to flower into early October. It is

estimated that a single plant can produce 100,000-180,000 seeds which may remain viable for more than 100 years. The seeds are dispersed mechanically near the parent plant during the autumn and winter. Seeds at or near the surface are more likely to germinate.

## MANAGEMENT OPTIONS

Although common mullein can be very difficult to eradicate, there are a variety of management methods available, depending on the particular situation. Because mullein seedling emergence is dependent on the presence of bare ground, sowing sites with early successional native grasses or other plants may decrease seed germination and the chance of successful emergence of mullein seedlings.

### **Manual and Mechanical**

Mullein plants are easily hand pulled on loose soils due to relatively shallow tap roots. This is an extremely effective method of reducing populations and seed productivity, especially if plant is pulled before seed set. If blooms or seed capsules are present, reproductive structures should be removed, bagged, and properly disposed of in a sanitary landfill. Care should be taken, however, to minimize soil disturbance since loose soil will facilitate mullein seed germination.

### **Biological**

There are two insects that have possible biological control implications for mullein. A European curculionid weevil (*Gymnaetron tetrum*), determined by the U.S. Department of Agriculture to be specific to mullein, has been introduced to North America. The weevil larvae matures in the seed capsules and can destroy up to 50% of the seeds. Another agent, the mullein moth (*Cucullia verbasci*) has been tested in the U.S. and is considered to be a relatively safe control agent because of its consistent feeding and development on mullein species. Although tests showed limited feeding on other native species, the larvae did not survive significantly longer than those individuals tested in the absence of food.



Release of biological controls into natural environments is always experimental and should be entered into only after full and careful consideration of potential non-target species impacts. Once released into nature, biological control agents are difficult if not impossible to control.

### **Chemical**

For situations where hand-pulling of plants is not practical or safe, for example, on very steep slopes where hand pulling is dangerous or would cause significant soil disturbance, herbicidal control is an effective option. Apply a 2% solution of glyphosate (e.g., Roundup®) or triclopyr (Garlon®) and water plus a non-ionic surfactant, using a tank or backpack sprayer to thoroughly cover all leaves. Do not apply so heavily that the herbicide drips off the leaf surface. Use caution as glyphosate is a non-selective herbicide that may kill desirable plants even if partially contacted by spray. Triclopyr is selective to broadleaf plants and is a better choice if native or other desirable grasses are present. For some sites, applications can be made during the early spring when most other non-target vegetation is dormant. Refer to the pesticide manufacturers' label for specific information and restrictions regarding herbicide use.

**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

For more information on the management of Common Mullein, please contact:

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20 May 2005

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## Plant Conservation Alliance's Alien Plant Working Group

Seeds Gone Wild: Alien Plant Invaders of Natural Areas

<http://www.nps.gov/plants/alien/>

## SUGGESTED ALTERNATIVE PLANTS

Although not a popular ornamental, there are many excellent native plant alternatives for mullein that thrive in full sun and sandy soils. In the eastern U.S., common milkweed (*Asclepias syriaca*), butterflyweed (*Asclepias tuberosa*), joe-pye weed (*Eupatorium dubium*), black-eyed Susan (*Rudbeckia fulgida*), and Ironweed (*Vernonia noveboracensis*), are just a few of the many selections. You may wish to contact your local native plant society for further suggestions.

## OTHER LINKS

- <http://www.invasive.org/search/action.cfm?q=Verbascum%20thapsus>
- [http://www.hear.org/starr/hiplants/images/thumbnails/html/verbascum\\_thapsus.htm](http://www.hear.org/starr/hiplants/images/thumbnails/html/verbascum_thapsus.htm)

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## PHOTOGRAPHS

National Park Service  
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