

# common mullein

## *Verbascum thapsus* L.

Synonyms: None

Other common names: big taper, flannel mullein, flannel plant, great mullein, velvet dock, velvet plant, woolly mullein (among 40 English common names).

Family: Scrophulariaceae

**Invasiveness Rank:** 52 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

Common mullein is a biennial forb that produces a robust rosette during its first year and a single stem during its second year. Plants die after flowering. Stems are stout, erect, and 61 to 183 cm tall. Rosettes grow up to 60 cm in diameter. Rosette leaves are 15 to 45  $\frac{3}{4}$  cm long, up to 10 cm wide, and covered with thick, woolly, branched hairs. Stem leaves are alternate, up to 40  $\frac{1}{2}$  cm long, and reduced towards the top. Flowers are sessile, yellow, and borne in long terminal spikes. They consist of five fused petals. Capsules are woolly and 3 to 10 mm long with numerous, small seeds (Gross and Werner 1978, Royer and Dickinson 1999, Whitson et al. 2000).



*Verbascum thapsus* L. Photo by F. Starr and K. Starr.

*Similar species:* It is unlikely that this species could be confused with any other plants in Alaska. Moth mullein (*Verbascum blattaria*) is a similar weed commonly found in southern Canada and the U.S., but it has not been found in Alaska. Moth mullein can be distinguished from common mullein by its lack of densely hairy leaves and by its less congested inflorescences.



Inflorescence of *Verbascum thapsus* L. Photo by M. Harte.

### Ecological Impact

*Impact on community composition, structure, and interactions:* Common mullein is generally not a

significant weed in natural areas; however, it can displace native forbs and grasses in sparsely vegetated meadows (Pitcairn 2000). Common mullein is a known host for numerous diseases and insect pests. Grazing animals avoid eating common mullein (Rutledge and McLendon 1996), and it often becomes abundant in overgrazed habitats. Flowers are visited by a number of insects. Hybridization between this species and others in the *Verbascum* genus has been recorded (Gross and Werner 1978).

*Impact on ecosystem processes:* Natural successional processes may be altered by the establishment of common mullein. When growing at high densities, common mullein appears to prevent the establishment of native herbs and grasses following fire or other disturbances (Pitcairn 2000).

### Biology and Invasive Potential

*Reproductive potential:* Common mullein reproduces by seeds only. This species can produce 100,000 to 240,000 seeds per plant (Gross 1980, Gross and Werner 1982). Seeds can remain viable for over 100 years (Kivilaan and Bandurski 1981), and viable seeds have been found in soil samples archaeologically dated from 1300 A.D. (Ødum 1965, cited in Gross and Werner 1978).

*Role of disturbance in establishment:* Common mullein colonizes newly disturbed sites and is easily crowded out by grasses or other plants (Gross and Werner 1978, Pitcairn 2000). In experiments conducted in Ohio and Michigan, seedling growth rates were higher in bare soil than in vegetated plots (Gross 1984). Seedlings did not establish in small, experimentally-created openings, but they did colonize large openings, such as those created by the digging of animals.

*Potential for long-distance dispersal:* Seeds have no specific adaptations for long distance dispersal. The inflorescence can break away from the plant and be transported up to 11 m away by wind or large animals (Gross and Werner 1978, Hoshovsky 1986).

*Potential to be spread by human activity:* Common mullein was introduced into North America as a medicinal herb, and it is often grown as an ornamental (Gross and Werner 1978, Hoshovsky 1986).

*Germination requirements:* Seeds germinate under a wide variety of environmental conditions. Germination occurs most readily at temperatures from 10°C to 40°C. Seeds germinate at the soil surface or when covered by less than 0.5 cm of soil (Gross 1980).

*Growth requirements:* Common mullein grows in areas with a mean annual precipitation of ½ to 1 ½ m and a growing season of at least 140 days. It grows well on well-drained soils, especially dry sand, with pH between 6.5 and 7.8. This species tolerates high calcium carbonate (CaCO<sub>3</sub>) contents and can grow in chalk and limestone habitats (Hoshovsky 1968).

*Congeneric weeds:* Moth mullein (*Verbascum blattaria*) is considered a noxious weed in Colorado (USDA 2002).

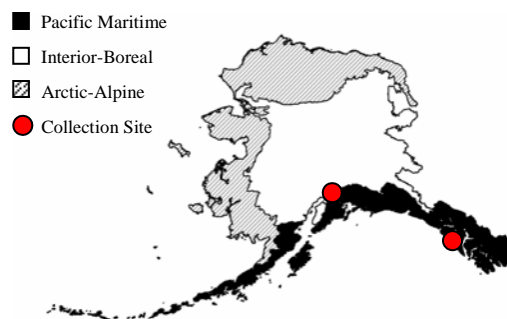
### Legal Listings

- Has not been declared noxious
- Listed noxious in Alaska
- Listed noxious by other states (CO, HI)
- Federal noxious weed
- Listed noxious in Canada or other countries

### Distribution and Abundance

Common mullein grows in abandoned pastures, meadows, and roadsides throughout the United States and Canada (Hoshovsky 1986, USDA 2002).

*Native and current distribution:* Common mullein is native to Asia and was introduced to North America from Europe as a medicinal herb (Hoshovsky 1986). It can be found throughout Europe, where its range extends as far north as 60°N (Lid and Lid 1994). Common mullein has been documented from the Pacific Maritime ecogeographic region of Alaska (UAM 2010).



Distribution of common mullein in Alaska

### Management

Common mullein is difficult to control because it produces a large number of extremely long-lived seeds. Hand pulling is an effective method of reducing populations. Plants should be pulled before seed set. Herbicides can be used to control large infestations, but the dense hairs on the leaves can prevent herbicides from entering the plant. This species cannot withstand regular cultivation. Sowing infested areas with native grasses and forbs may decrease the germination and establishment of subsequent generations of common mullein. A curculionid weevil specific to common mullein was introduced to North America from Europe. The larvae mature inside the capsules and can destroy up to 50% of the seeds (Gross and Werner 1978, Hoshovsky 1986, Pitcairn 2000).

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**References:**

- AKEPIC database. Alaska Exotic Plant Information Clearinghouse Database. 2010. Available: <http://akweeds.uaa.alaska.edu/>
- Gross, K.L. and P.A. Werner. The biology of Canadian weeds. 28. *Verbascum thapsus* L. and *V. blattaria* L. Canadian Journal of Plant Science. 58: 401-413.
- Hoshovsky, M.C. 1986. Element stewardship abstract for *Verbascum thapsus* Common mullein. The Nature Conservancy, Arlington, Virginia.
- Invaders Database System. 2010. University of Montana. Missoula, MT. <http://invader.dbs.umt.edu/>
- ITIS. 2010. Integrated Taxonomic Information System. <http://www.itis.gov/>
- Kivilaan, A. and R.S. Bandurski. 1981. The one hundred-year period for Dr. Beal's seed viability experiment. American Journal of Botany. 68(9): 1290-1292.
- Lid, J. and D. T. Lid. 1994. Flora of Norway. The Norske Samlaget, Oslo. Pp. 1014.
- Pitcairn, M.F. 2000. *Verbascum thapsus* L. In: Invasive plants of California's wildlands. Edited by Bossard, C.C., J.M. Randall, and M.C. Hoshovsky. University of California Press. p. 321-326.
- Royer, F., and R. Dickinson. 1999. Weeds of the Northern U.S. and Canada. The University of Alberta press. 434 pp.
- Rutledge, C.R., and T. McLendon. 1996. An Assessment of Exotic Plant Species of Rocky Mountain National Park. Department of Rangeland Ecosystem Science, Colorado State University. 97 pp. Northern Prairie Wildlife Research Center Home Page. <http://www.npwrc.usgs.gov/resource/plants/explant/index.htm> (Version 15DEC98).
- UAM. 2010. University of Alaska Museum, University of Alaska Fairbanks. Available: <http://arctos.database.museum/home.cfm>
- USDA (United States Department of Agriculture), NRCS (Natural Resource Conservation Service). 2002. The PLANTS Database, Version 3.5 (<http://plants.usda.gov>). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.
- Whitson, T. D., L. C. Burrill, S. A. Dewey, D. W. Cudney, B. E. Nelson, R. D. Lee, R. Parker. 2000. Weeds of the West. The Western Society of Weed Science in cooperation with the Western United States Land Grant Universities, Cooperative Extension Services. University of Wyoming. Laramie, Wyoming. 630 pp.