GLOBAL INVASIVE SPECIES DATABASE

FULL ACCOUNT FOR: ***Verbascum thapsus***

Verbascum thapsus 简体中文 正體中文

System: Terrestrial

Kingdom	Phylum	Class	Order	Family
Plantae	Magnoliophyta	Magnoliopsida	Scrophulariales	Scrophulariaceae

Common name common mullein (English), great mullein (English), Aaron's-rod (English), bouillon blanc (French), barbasco (Portuguese), flannel plant (English), hag taper (English), torches (English), gordolobo comun (Spanish), velvet plant (English), guardalobo (Spanish), mullein (English), big taper (English), woolly mullein (English), verbasco (Portuguese), velvet dock (English), flannelleaf (English), flannel mullein (English), molène (French)

Synonym

Similar species

Summary Verbascum thapsus is an erect herb in the family Scrophulariaceae. It is found in neglected meadows and pasture lands, along fencerows and roadsides. It can produce 100,000-180,000 seeds per individual plant and seeds may remain viable for over 100 years. Verbascum thapsus threatens natural meadows and forest openings, where it adapts easily to a wide variety of site conditions and an established population can be extremely difficult to eradicate. Verbascum thapsus was once used as a herbal remedy for bronchitis, colds and congestion.

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Species Description
Verbascum thapsus is described as an erect herb. During the first year *V. thapsus* are low-growing rosettes of bluish gray-green, with felt-like leaves that range from 10cm to 30cm in length and 2.5cm to 13cm in width. Mature flowering plants are produced the second year, and grow to 1.5 to 3.0 metres 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 are 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 (Remaley, 1998).

Lifecycle Stages
\"*Verbascum thapsus* seeds are known to remain viable in the soil for long periods. Seedlings are known to be the initial species to emerge on bare or disturbed sites. Seedling emergence is limited by its rosette growth form. Its lateral spread does not enable it to rapidly grow above surrounding vegetation to reach stronger light. Flowering commences in the second year and the plant rarely remains vegetative during its third year. Flowers mature on the stalk from bottom up on the spiral.\n\"

Uses
Remaley (1998) states that *Verbascum thapsus*, \"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. 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.\"

Habitat Description
Verbascum thapsus is found establishing in neglected meadows and pasture lands, along fence rows and roadsides, and in industrial areas throughout North America (Hoshovsky, 1986).

Reproduction
Verbascum thapsus can be cross-pollinated, and flowers can also be autogamous, with self-pollination occurring at the end of the day if cross-pollination has not occurred. It is a prolific seed bearer and a single plant may produce 100,000-180,000 seeds. Seeds have no specialized structures for long distance dispersal. The capsule splits open when mature; movement of the stalk by wind or a large animal is required to release the seeds from the parent. Seeds remain viable in the soil for very long periods (Hoshovsky, 1986).

Nutrition
Verbascum thapsus is found growing in areas where the mean annual precipitation is 50-150cm and the growing season is at least 140 days. Dry sandy soils are preferred but *V. thapsus* is common in chalk and limestone districts in England. In Canada it grows abundantly in, but is not restricted to, pastures with well-drained soils and a pH of 6.5-7.8 (Hoshovsky, 1986).

General Impacts
An important characteristic of *Verbascum thapsus* is its ability of adapting to a variety of site conditions. It grows more vigouously than native herbs and shrubs wherever it establishes. *V. thapsus* threatens natural meadows and forest openings. It is a prolific seed bearer with seeds remaining viable for long periods in the soil. An established population of *V. thapsus* can be extremely difficult to eradicate (Remaley, 1998).

Management Info
Preventative measures: As *Verbascum thapsus* 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 *V. thapsus* seedlings.
Manual: Hand pulling of seedlings should be undertaken after they are large enough to grasp but before they produce seeds, while hand hoeing can destroy very small plants by exposing their root systems to the sun, causing them to desiccate. Small infestations of mullein can be removed by hand digging. Although this is a slow and laborious technique it is suitable for sensitive areas, such as around other desirable trees or shrubs, where other methods may not be suitable.
Mechanical Scarification, the use of ploughs and discs to uproot plants, is not recommended for the control of mullein. This is because it creates areas of bare ground that are ideal for the establishment of new mullein populations. Regular cultivation is known to be adequate for the control of mullein. Tractor-mounted mowers or scythes can be used to trim mullein, depending on the terrain. The best time to cut is when the plants begin to flower. Repeated mowing will prevent the flower stalk from bolting but if mowing is then discontinued then the plant will bolt and produce flowers.
Biological: Intentional establishment of late successional native plants among mullein infestations may result in the weeds being outcompeted and thereby eliminated.
Mullein is unpalatable to cattle and sheep due to the dense cover of trichomes on the leaves. However, goats are known to have a wide dietary range and they may be suitable for controlling or eliminating mullein through grazing. Chickens may be used to deplete the seed bank in areas where mature mullein plants have been removed, since they destroy seeds as they feed.
A curculionid weevil (*Gymnaetron tetrum*,), which is specific to *V. thapsus*, was introduced to North America from Europe. Its larvae can destroy up to 50% of the seeds. Eight other beetle species are known to attack mullein but they have not been reported in America.
Powdery mildew (*Erysiphe cichoracearum*) and root rot (*Phymatotricum omnivorum*) are two micro-organisms that cause disease in mullein, although they also affect a range of valuable crops as well. Other micro-organisms found on mullein include: *Cercospora verbasciola*; *Phoma thapsi*; *Phyllosticta verbaciola*; *Heterodera maroni*; *Meloidogyne* sp.; *Mycosphaerella verbasciola*; *Ramularia veriabilis*; *Septoria verbasciola*; and *Oidium pyrinum*.
Chemical: A single application of a 2,4-D/2,4,5-T mixture at 16 oz/acre at the rosette stage of development has been known to control mullein, however the epidermal hairs on the leaves can reduce the effectiveness of aqueous solutions as they hold the droplets away from the leaf itself. An initial application of the herbicide Tebuthiuron at 4-6 lbs/acre, and follow-up treatments at half this concentration, has been shown to achieve long-term control of mullein (Hoshovsky, 1986).

Pathway
Brought over from Europe by settlers, *V. thapsus* was used as a medicinal herb, as a remedy for coughs and diarrhea and a respiratory stimulant for the lungs when smoked (Remaley, 1998).

Principal source: Remaley, 1998. Common mullein: *Verbascum thapsus*.
Hoshovsky, 1986. *Verbascum thapsus*

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[1] CHILE
[50] UNITED STATES

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7 references found for **Verbascum thapsus**

Managment information

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Summary: Information on description, economic importance, distribution, habitat, history, growth, and impacts and management of species.
Available from: http://usgssrv1.usgs.nau.edu/swepic/factsheets/Verbascum_thapsus-1.pdf [Accessed 25, October 2003]

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Summary: Information on description, economic importance, distribution, habitat, history, growth, and impacts and management of species.
Available from: http://www.nps.gov/plants/alien/fact/veth1.htm [Accessed 25 October 2003]

General information

Flora Patagonica, 1999. Vol. VI, M.N. Correa (Ed.) INTA- Buenos Aires

ITIS (Integrated Taxonomic Information System), 2005. Online Database *Verbascum thapsus*
Summary: An online database that provides taxonomic information, common names, synonyms and geographical jurisdiction of a species. In addition links are provided to retrieve biological records and collection information from the Global Biodiversity Information Facility (GBIF) Data Portal and bioscience articles from BioOne journals.
Available from: http://www.cbif.gc.ca/pls/itisca/taxastep?king=every&p_action=containing&taxa=Verbascum+thapsus&p_format=&p_ifx=plglt&p_lang= [Accessed March 2005]

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