Verbascum thapsus L. (Scrophulariaceae)
Common Mullein, Woolly Mullein

Description. Herbaceous, monocarpic, usually biennial, 3-20 dm tall; stems erect, stout, winged at the base of the cauline leaves. Basal leaves in a rosette, petiolate, the blades 8-50 cm long, 2.5-14 cm wide, oblanceolate to obovate, cauline alternate, sessile, decurrent, reduced upwards, the blades 1.5-15 cm long, oblanceolate, yellowish woolly-tomentose, margins entire, apices acute to obtuse, the bases acute to tapered. Inflorescence a terminal, dense spike. Flowers slightly bilateral to radial, calyx 5-12 mm long, lobes five, lanceolate; corolla 12-30 mm wide, rotate, yellow, the lobes ciliate; stamens 5, all fertile, unequally inserted, the lower filaments glabrous, the upper yellow-villous; ovary superior. Fruit a capsule, 7-10 mm long, globose, densely tomentose, ovoid; seeds many. In California, flowering from June to October. (Fernald 1950, Gleason and Cronquist 1991, Holmgren 1984, Munz 1959, Pennell 1951, Wagner et al. 1990, Webb 1972, Webb et al. 1988, Welsh et al. 1987, Wetherwax 1993).

Webb (1972) recognized three subspecies in Europe, based on variation in filament pubescence and leaf decurrence, but the three taxa are not easily distinguished in North America (Gleason and Cronquist 1991, Holmgren 1984)

Note: Common mullein produces iridoid glycosides, which may influence palatability by insects, and also is known as a source of medicinal herbal extracts (e.g., Filippini et al. 1990, McCutcheon et al. 1995).

Geographic distribution. A native of Eurasia, common mullein has become naturalized throughout North America, Chile, Hawaii, Australia, and New Zealand. (Holmgren 1984, 1986, Montenegro et al. 1991, Munz 1959, Wagner et al. 1990, Webb et al. 1988).

Common mullein was first collected in California (Sacramento County) in the 1850s (Brandegee 1901) and from southern California between 1906 and 1918 (Parish 1920). It has been reported only from Santa Cruz Island (Junak et al. 1997), but is widespread on mainland California (Anonymous 1998, Weatherwax 1993).

Reproductive and vegetative biology: *Verbascum thapsus* is self-compatible, but largely outcrossing (Darwin 1876). The flowers are pollinated principally by small bees in Great Britain and Europe (Proctor et al. 1996). Seed dispersal is passive and generally limited to ca. 4 meters (Salisbury 1961). Seeds require light for germination, which is enhanced by cold temperatures during the first season after dispersal (Baskin and Baskin 1981, Gross 1985, Vanlerberghe and Van Assche 1986). However, ungerminated seeds may enter a longer phase of dormancy by exposure to warm temperatures and can retain high levels of viability (up to 95%) for at least 17 years (Baskin and Baskin 1981, Burnside et al. 1996). Seed germination is enhanced by cultivation, soil movements by subterranean rodents, and is suppressed by leaf litter (Bosy and Reader 1995, Gross 1980, Gross and Werner 1982, Semenza et al. 1978).

Common mullein is generally referred to as a biennial, but individual plants may live longer than 3 (i.e., triennial) years (Gross 1981, Reinartz 1984a,b,c). In some populations from warm temperate climates, plants lived only 1 year prior to reproduction, but in others triennials predominated in populations followed from germination to reproduction (Reinartz 1984a,b,c).

Common mullein shows a broad range of ecotypic variation for life history characteristics, including rosette size, rosette longevity, reproductive capacity, and timing of reproduction (Reinartz 1984a,b,c). Growth during the vegetative phase depends on available nutrients and light; reproductice capacity increases with increasing rosette size (Abrahamson and Caswell 1982). Compared to other monocarpic species, Reinartz (1984b) reported that common mullein has a relatively low seed production (25-40% of ovule number).

Ecological distribution. Common mullein occurs in disturbed open sites, fallow fields, and along roadsides (Gleason and Cronquist 1991, Holmgren 1984, Mitich 1989, Munz 1959, Reinartz 1984a, Welsh et al. 1987).

Weed status. *Verbascum thapsus* is not considered a serious noxious weed in agricultural or horticultural practice, at least at a global level (not listed by Holm et al. 1977), but it has been listed for the United States by Lorenzi and Jeffery (1987). However, it is considered as a noxious weed by the State Dept. of Food and Agriculture (Anonymous 1996), especially in eastern California sagebrush associations and pinyon-juniper woodlands..

Microbial and insect pathogens. No literature was found that reported microbial or insect pathogens of common mullein.

Herbicide Control. Lorenzi and Jeffery (1987) recommended mechnical removal of rosettes or treatment with either 2,4-D or glyphosate. No other literature was found pertinent to herbicide control.

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