

This WEED REPORT does not constitute a formal recommendation. When using herbicides always read the label, and when in doubt consult your farm advisor or county agent.

This WEED REPORT is an excerpt from the book *Weed Control in Natural Areas in the Western United States* and is available wholesale through the UC Weed Research & Information Center (wric.ucdavis.edu) or retail through the Western Society of Weed Science (wsweedscience.org) or the California Invasive Species Council (cal-ipc.org).

Marrubium vulgare L.

White horehound

Family: Lamiaceae

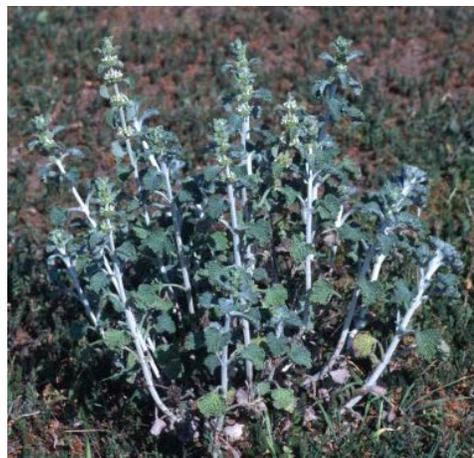
Range: Nearly all states, including all western states, except perhaps North Dakota. Found almost worldwide.

Habitat: Pastures, fields, roadsides, rangeland, disturbed natural areas, waste places, ditches, and other disturbed places. Most often in dry places. White horehound is especially common in overgrazed areas.

Origin: Native to Eurasia. White horehound was once cultivated as a medicinal herb and for flavoring candy.

Impacts: Expands range during drought conditions, especially under heavy grazing. Once established, it can outcompete native vegetation and form dense stands in annual grasslands. Livestock avoid consuming the bitter-tasting foliage, and the plant thrives in the absence of competition with other vegetation.

California Invasive Plant Council (Cal-IPC) Inventory: Limited Invasiveness



White horehound is a cool-season perennial to 2 ft tall, often looking like a low shrub. It has densely hairy white-woolly stems, thick and square in cross-section, which mostly branch near the base of the plant. Its leaves are aromatic, opposite on the stems, ovate to nearly round, 0.5 to 2.5 inches long, with round-toothed margins. Both upper and lower leaf surfaces are hairy, and the veins are depressed so the leaves look puckered. White horehound forms a branched woody taproot with numerous fibrous laterals.

In spring to summer, white horehound produces head-like whorls of small white flowers in the upper leaf axils, spaced along the stems. After senescence in late fall, dead stems with persistent fruits can persist through winter. The plant reproduces only by seed. Fruits disperse primarily by falling to the ground beneath the parent plants, but long distance dispersal can occur when seeds cling to the fur, feathers, and feet of animals or to the shoes and clothing of people. Anecdotal reports suggest that the seed of white horehound can survive in soil for 7 to 10 years.

NON-CHEMICAL CONTROL

Mechanical (pulling, cutting, disking)	In small patches, manual removal (pulling or hoeing) is effective and should be repeated as needed when new seedlings emerge. Mowing before seed production can help to restrict growth of a patch. Deep cultivation, especially when the soil is dry, can control horehound, although partially buried plants may survive. However, this technique is not practical in most natural areas.
Cultural	Sheep will feed on horehound, but it is not preferred forage. Intensive grazing may open up the ground for the plant to spread. Ensure that livestock are quarantined or clean of burs before entry onto clean land. In some trials in pasture, the use of broadleaf-selective chemicals followed by heavy grazing has been shown to reduce horehound abundance. Burning can kill mature plants but usually stimulates seed germination the following season. Burning can be effective when followed by other control measures, such as chemical control of seedlings.
Biological	Some moth species have been released for horehound control in Australia but have not been made available in North America. In Australia, the combination of biocontrol insects and herbicides such as 2,4-D appears promising.

CHEMICAL CONTROL

Fall is generally the best time for controlling mature white horehound. It is very important to include surfactant in foliar treatments of this plant because of the hairy leaves. White horehound is slow to show herbicide symptoms.

The following specific use information is based on published papers and reports by researchers and land managers. Other trade names may be available, and other compounds also are labeled for this weed. Directions for use may vary between brands; see label before use. Herbicides are listed by mode of action and then alphabetically. The order of herbicide listing is not reflective of the order of efficacy or preference.

GROWTH REGULATORS	
2,4-D Several names	Rate: 1 to 4 pt product/acre (0.48 to 1.9 lb a.e./acre) Timing: Apply to young, rapidly growing plants. Remarks: 2,4-D is broadleaf-selective and has no soil activity. Use higher rates for larger, more established plants. Reports on control of established plants are mixed. Do not apply when outside temperatures exceed 80°F.
Dicamba <i>Banvel, Clarity</i>	Rate: 1 to 4 pt product/acre (0.5 to 2 lb a.e./acre) Timing: Apply to young, rapidly growing plants. Remarks: Dicamba is a broadleaf-selective herbicide often combined with other active ingredients. Higher rates are needed for control of mature plants, but it can injure grasses at higher rates.
Picloram + 2,4-D <i>Grazon P+D, Gunslinger</i>	Rate: 2 to 4 pt product/acre Timing: Apply during active growth. Remarks: Both compounds are broadleaf-selective and relatively safe on grasses. Not registered for use in California.
Triclopyr <i>Garlon 3A, Garlon 4 Ultra</i>	Rate: 3.33 pt <i>Garlon 3A</i> /acre, 2.5 pt <i>Garlon 4 Ultra</i> /acre (1.25 lb a.e./acre) Timing: Postemergence to rapidly growing weeds. Remarks: Triclopyr is broadleaf-selective and is safe on most grasses. It is most effective on smaller plants. <i>Garlon 4 Ultra</i> is formulated as a low volatile ester. However, in warm temperatures, spraying onto hard surfaces such as rocks or pavement can increase the risk of volatilization and off-target damage.
BRANCHED-CHAIN AMINO ACID INHIBITORS	
Metsulfuron <i>Escort</i>	Rate: 0.2 to 1 oz product/acre (0.12 to 0.6 oz a.i./acre) Timing: Apply to young, rapidly growing weeds in spring before flowering, or in fall to new rosettes. Remarks: Metsulfuron has mixed selectivity and is generally safe on grasses. Use a surfactant. It can be tank-mixed with 2,4-D and/or dicamba and has some soil residual activity. Not registered for use in California.

RECOMMENDED CITATION: DiTomaso, J.M., G.B. Kyser et al. 2013. *Weed Control in Natural Areas in the Western United States*. Weed Research and Information Center, University of California. 544 pp.