Equisetum spp.

Horsetail and scouringrush

Family: Equisetaceae
Range: All contiguous states.
Habitat: Primarily found in moist places. In natural systems they are found in areas such as marshland, meadows, riparian zones, and on the margins of ponds and lakes. In anthropologically disturbed areas they occur in pastures, agricultural fields and orchards, and along irrigation ditches.
Origin: Native to North America, including the western states.
Impact: Many species are native to the western United States and are desirable species in some natural areas, but are considered problematic species when they enter human controlled areas such as pastures, agricultural fields, and controlled aquatic areas. The rhizomatous plants form dense colonies and are considered harmful in pasture and rangeland, because some species contain alkaloids that are toxic to livestock. These alkaloids destroy thiamine and are especially harmful to horses when ingested.
Western states listed as Noxious Weed: *Equisetum telmateia*, Oregon

The *Equisetum* genus consists of primitive rhizomatous perennials. The green photosynthetic main stems are longitudinally ribbed and hollow, except at the nodes where the branches are whorled. Species with whorls of lateral branches are referred to as horsetails, while those lacking lateral branches are called scouringrushes. The leaves of all species are small and in some species highly reduced. Leaves are united in a node-sheathing tube that is toothed along the upper margin. The rhizomatous root system is extensive and can grow to a depth of 5 ft or more. The rhizomes root at the nodes and store starch in tubers in the internodes. These tubers can detach from the parent plant and grow into a new plant.

Equisetum species reproduce by spores mainly between March and July. The strobilus is a cone-like reproductive structure at the end of the stem. The strobilus consists of numerous small flower-shaped bracts (sporophylls) on short stalks, with spore-bearing structures called sporangia on the lower surfaces. The stems in most species contain large amounts of silica, and the plants were used historically for scrubbing and cleaning.

NON-CHEMICAL CONTROL

Mechanical (pulling, cutting, disking)	Cutting and disking have short-term effectiveness, not lasting longer than a couple weeks. Cutting only destroys the top growth and delays reestablishment. Continuous tillage may result in effective control if complete destruction is achieved.
Cultural	Horsetail is top-killed by fire but regenerates rapidly. The frequency of occurrence of field horsetail is usually unchanged or increased after fire. Applying nitrogen fertilizer to grass crops is helpful because horsetail responds minimally to nitrogen, while grass crops respond quickly and significantly. This gives the crop a highly competitive advantage over horsetail because this weed is shade sensitive. Where possible, reducing the amount of water to an infested area can reduce the competitiveness of *Equisetum* species.
Biological	There are no approved biological control agents available for any of the *Equisetum* species, primarily because they are native species.

CHEMICAL CONTROL

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:** Postemergence to rapidly growing weeds. Smaller weeds are more easily controlled. **Remarks:** 2,4-D is broadleaf-selective. It has little soil activity and is often combined with other active ingredients, e.g., dicamba. Do not apply when outside temperatures exceed 80°F. Aquatic registered formulations are available for use close to water.
Aminocyclopyrachlor + chlorsulfuron *Perspective*	**Rate:** 4.75 to 8 oz product/acre **Timing:** Postemergence to rapidly growing weeds. Smaller weeds are more easily controlled. **Remarks:** *Perspective* provides broad-spectrum control of many broadleaf species. Although generally safe to grasses, it may suppress or injure certain annual and perennial grass species. Do not treat in the root zone of desirable trees and shrubs. Do not apply more than 11 oz product/acre per year. At this high rate, cool-season grasses will be damaged, including bluebunch wheatgrass. Not yet labeled for grazing lands. Add an adjuvant to the spray solution. This product is not approved for use in California and some counties of Colorado (San Luis Valley).
Fluroxypyr *Vista XRT*	**Rate:** 22 oz product/acre (7.7 oz a.e./acre) **Timing:** Postemergence when target plants are small and rapidly growing. For optimum control add 0.25 to 0.5% v/v seed soil surfactant. **Remarks:** Provides only suppression and not complete control. Not registered for aquatic areas.
BRANCHED-CHAIN AMINO ACID INHIBITORS	
Chlorsulfuron *Telar*	**Rate:** 1 to 2.6 oz product/acre (0.75 to 1.95 oz a.i./acre) **Timing:** Preemergence or early postemergence when weeds are germinating and actively growing. **Remarks:** Do not apply more than 2.6 oz product/acre per year and only 1.33 oz product/acre per year in grazed areas. Chlorsulfuron has long soil residual activity. *Telar* can be used near water, but cannot be applied to water.
Metsulfuron *Escort*	**Rate:** 1 to 2 oz product/acre (0.6 to 1.2 oz a.i./acre) **Timing:** Early postemergence to rapidly growing plants. **Remarks:** Certain biotypes are less sensitive to metsulfuron. Not registered for aquatic areas. Metsulfuron is not registered for use in California.
Sulfometuron *Oust* and others	**Rate:** 6 to 8 oz product/acre (4.5 to 6 oz a.i./acre) for areas receiving more than 20 inches of precipitation per year **Timing:** Preemergence or early postemergence when the target plants are germinating and actively growing. **Remarks:** Add a surfactant to improve control. Sulfometuron has long soil residual activity. It is a broad-spectrum herbicide. May move long distances in dry light windblown soils. Not registered for aquatic areas.

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.