Toxicodendron diversilobum (Torr. & A. Gray) E. Greene

Pacific poison-oak

Family: Anacardiaceae
Range: Baja California to British Columbia. West of the Cascade Range in Washington and Oregon; ubiquitous in California west of the Sierra Nevada. Also along the western side of Nevada.
Habitat: Mixed evergreen forests, woodlands, chaparral, coastal sage scrub, and riparian zones. It is one of the most widespread shrubs in California. It generally occurs on acid soils, but is not limited to any particular soil type, texture or drainage pattern. Pacific poison-oak is typically found at less than 5,000 ft elevation and grows on all aspects. It can tolerate drought, fire, and low temperatures.
Origin: Native to the Pacific Coast of the western United States from British Columbia to Baja California.
Impacts: One of the most hazardous native plants in the western states. It can be problematic wherever people are likely to contact the plant such as along trails or during brush removal around homes, along rights-of-way, fire breaks, construction sites, etc. All plant parts, except the pollen, have resin canals that contain the phenolic compound urushiol. Direct contact with bruised, broken, or insect-damaged plant parts, including dormant leafless stems, or contact with items such as tools, clothing, gloves, and pets that have had direct contact with plants can cause allergenic contact dermatitis in sensitive individuals. Smoke from burning material can cause severe respiratory irritation if inhaled. Sensitivity to Pacific poison-oak often increases with repeated exposure.

Pacific poison-oak is a native deciduous shrub to 12 ft tall, with compound leaves that typically consist of three (sometimes five) leaflets. Plants are sometimes vine-like with stems to 75 ft long, and may climb trees or other support structures by adventitious roots and/or wedging stems within grooves or crevices of the support. The bright green leaves are round to ovate, diversely lobed or toothed and resemble oak leaves.

Small white flowers occur in leaf axils, with male and female flowers on separate plants. In fall the leaves turn brilliant shades of scarlet, orange, yellow and maroon. Pacific poison-oak reproduces vegetatively from root sprouts and by seed. Reproduction by root suckers is most prevalent after disturbance such as fire or browsing by animals. Suckering can also be extensive after being cut or damaged. Seeds are produced in smooth, berrylike fruits and are most commonly spread by birds.

NON-CHEMICAL CONTROL

Mechanical (pulling, cutting, disking)	Protective clothing, including washable cotton gloves over plastic gloves, can help prevent exposure to the resin that causes contact dermatitis. Even with these protective measures, hand pulling is not generally recommended, as exposure can cause severe contact dermatitis in susceptible individuals. Mechanical removal of plants, including the root systems, is most effective when the soil is moist. Any stumps or rhizomes left behind will resprout. Hand pulling can remove seedlings, but once underground rhizomes have developed, this technique is generally not effective.
Cultural	Repeated grazing by sheep and/or goats will eventually kill the plant by exhausting the root carbohydrate reserves. Burning is not recommended as it does not kill the root system and the smoke is hazardous to human health.
Biological	As a native plant of the western United States, there are no efforts to develop biological control programs for Pacific poison-oak.

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	
Dicamba *Banvel, Clarity*	**Rate:** Broadcast treatment: 2 qt product/acre (2 lb a.i./acre). Cut stump treatment: 25 to 50% dicamba in 50 to 75% water. **Timing:** Postemergence foliar treatments are best when plants are growing rapidly. Best when used in late summer to early fall, but before leaf drop. For cut stump treatment, application in late summer, early fall or dormant season provides the best control. Treat immediately after cutting. **Remarks:** Selective herbicide for broadleaf species; will not damage desirable grasses growing nearby. Basal bark applications are as described for triclopyr. Plants should not be cut for at least 4 months after basal bark treatments. Roots may sucker after cutting, but the treatment should control most resprouts.
Picloram *Tordon 22K*	**Rate:** Foliar treatment: 1 qt product/acre. Efficacy is improved with the addition of 3 to 5 qt/acre of *Garlon 4 Ultra*, or 4 to 8 qt of *Garlon 3A*/acre. **Timing:** End of summer to beginning of fall when plants are growing rapidly, but before leaf drop. **Remarks:** High rates can give long-term soil residual activity for broadleaves. Also available as a premix with 2,4-D (*Grazon P+D*). Restricted use pesticide. Picloram and its formulations are not registered for use in California.
Triclopyr *Garlon 3A, Garlon 4 Ultra, Pathfinder II*	**Rate:** Low volume foliar treatment: 1 to 5% v/v solution of *Garlon 4 Ultra*, or 1 to 3% *Garlon 3A* in water with a 0.5% v/v surfactant to thoroughly wet all leaves. Cut stump treatment: 25% *Garlon 4 Ultra* in 75% oil carrier, or undiluted *Garlon 3A* or 50% *Garlon 3A* in water. Basal bark treatment: 20% *Garlon 4 Ultra* in 80% oil carrier, or *Pathfinder II* as a ready-to-use formulation. For basal cut stump treatment: 25% *Garlon 4 Ultra* in 75% oil carrier. For cut stump treatment: undiluted *Garlon 3A,* or 50% *Garlon 3A* in water. **Timing:** Postemergence when plants are growing rapidly. Cut stump, basal cut stump, and basal bark treatments can be applied anytime as long as the ground is not frozen, but are best when used in late summer or early fall, before leaf drop. **Remarks:** Selective herbicide for broadleaf species; will not damage desirable grasses growing nearby. For cut stump treatments, cut stems horizontally at or near ground level and immediately apply herbicide solution. Suckering from the roots typically occurs after cutting, but the treatment should control most resprouts. For basal bark treatment, spray the lower trunk, including the root collar, to a height of 12 to 15 inches from the ground; the spray should thoroughly wet the lower stem but not to the point of runoff. Plants should not be cut for at least 1 month following basal bark treatment.
Triclopyr +2,4-D *Crossbow*	**Rate:** Foliar treatment: 1 to 1.5% solution of *Crossbow* and water. Apply to thoroughly wet all leaves. **Timing:** Postemergence when plants are growing rapidly. **Remarks:** *Crossbow* in water forms an emulsion (not a solution), and separation may occur unless the spray mixture is agitated continuously.
AROMATIC AMINO ACID INHIBITORS	
Glyphosate *Roundup, Accord XRT II*, and others	**Rate:** Foliar treatment: 2% v/v solution of *Roundup ProMax* (or other trade name with similar concentration of glyphosate) in water to thoroughly wet all leaves. Low volume spot treatment: 5 to 10% v/v solution of *Roundup* (or other trade name) in water. Spray coverage should be uniform over at least 50% of the foliage. Cut stump treatment: undiluted *Roundup* or 50% v/v *Roundup* (or other trade name) in water. **Timing:** Postemergence foliar treatments are best when plants are growing rapidly at or beyond bloom stage, particularly after fruits form. Treat in late summer or early fall before leaves lose green color. Suckering from the roots might occur the following year. For cut stump treatment, application in late summer, early fall or dormant season provides the best control. Treat immediately after cutting. **Remarks:** Nonselective systemic herbicide with no soil activity. Gives good control with some resprouts. Plants should not be cut for at least 4 months after foliar treatments. Cut stump applications are as described for triclopyr.
BRANCHED-CHAIN AMINO ACID INHIBITORS	
Imazapyr	**Rate:** Cut stump treatment: 20% *Stalker* or *Chopper* formulation in 80% oil carrier or 20% *Arsenal* or *Habitat*

Arsenal, Habitat, Stalker, Chopper, Polaris	in 80% water carrier. Basal bark treatment: 20% *Stalker* or *Chopper* formulation in 80% oil carrier. **Timing:** Best when used for stem treatments in late summer to early fall, but before leaf drop. **Remarks:** Imazapyr is a soil residual herbicide and may result in bare ground around plants for some time after treatment. Cut stump and basal bark applications are as described for triclopyr. Plants should not be cut for at least 4 months after basal bark treatments. Roots may sucker after cutting, but the treatment should control most resprouts.

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.