Cytisus scoparius L.

Scotch broom

Family: Fabaceae
Range: The entire Atlantic and Pacific coasts from Alaska to British Columbia to California, and from Nova Scotia through Georgia. Also Idaho, Montana and Utah, as well as one Hawaiian island.
Habitat: Grasslands, shrublands, oak woodlands, forest margins, coastal habitats, riparian corridors; disturbed sites such as roadsides, pasture, gravelly floodplains, burned areas, cleared forests. Typically in mountain regions and cool coastal areas with dry summers. Grows best on sandy, high phosphorus soils with acidic to neutral pH; can tolerate high boron concentrations. Rarely grows on limestone soils.
Origin: Central and southern Europe and North Africa. Introduced to the U.S. in the 1850s as an ornamental and for erosion control.
Impacts: Grows rapidly, forming dense stands that most wildlife find impenetrable and unpalatable. Dense stems limit regeneration of most other plant species, and the accumulation of woody biomass creates a dangerous fire hazard. Broom can fix nitrogen, which increases soil fertility and gives a competitive advantage to other non-native weeds.
Western states listed as Noxious Weed: California, Idaho, Montana, Oregon, Washington
California Invasive Plant Council (Cal-IPC) Inventory: High Invasiveness

Scotch broom is a fast-growing deciduous shrub, 5 to 10 ft tall, with yellow, pea-like flowers. Stems are 5-angled or ridged, often star-shaped in cross-section. New twigs are green, erect and covered with wavy hairs, becoming smooth and woody with age. The leaves at branch bases have three leaflets alternately arranged. Upper leaves are simple, without petioles. Leaflets are < 1/3 inch long, widest at the tip and often pointed.

Plants begin flowering from 18 months to 3 years of age. The bright yellow, occasionally maroon, flowers are single or in pairs in leaf axils. Reproduction is by seed. Seeds are in small, flattened pods 0.75 to 2 inches long. Pods are dark brown or black when mature; contain 5 to 9 seeds, and have hairs along the margin. When mature, pods eject the seeds several feet from the plant. Seeds can remain viable in the soil for up to 30 years. Large soil seedbanks often accumulate making long term control difficult. Shrubs may live for up to 30 years.

NON-CHEMICAL CONTROL

Mechanical (pulling, cutting, disking)	Seedlings and small shrubs can be hand pulled. For larger established shrubs, a weed wrench or other woody weed extractor can be used. Extract the entire root or resprouting will occur. Best results are achieved when soil is moist. Disturbing the soil can stimulate the seedbank. Cutting broom off before it flowers will reduce seed production and will deplete the plant's energy reserves. Resprouting is common after treatment, but can be reduced by cutting broom at the beginning of the dry season. Cutting should be combined with an herbicide treatment or with multiple cuttings over a period of years. Cut shrubs at ground level with power or manual saws. Heavy equipment can be used to control broom in areas where soil disturbance and nonselective species removal are not important considerations. Stumps remaining following such treatment will require herbicide application to prevent regrowth.
Cultural	Grazing is not considered an effective control option. Broom flowers and seeds contain quinolizidine alkaloids and can be toxic to humans and livestock. Foliage may be mildly toxic and is unpalatable to most livestock, except goats. Goats confined to a small area can help control resprouts after a cutting or burn

	treatment. Burning alone is not effective. Although burning can remove debris, it also removes competing vegetation, releases nutrients into the soil, and stimulates germination of broom seed in the soil. It is important to employ a control strategy following a burn, otherwise the broom population may become worse. Follow-up treatments could include herbicide application, repeat burnings, and/or revegetation with desirable species.
Biological	Insects introduced as biological control agents include the Scotch broom seed beetle (*Bruchidius villosus*), the Scotch broom seed weevil (*Apion fuscirostre*), and the Scotch broom twig miner moth (*Leucoptera spartifoliella*). The latter two species are specific to Scotch broom, while the seed beetle also attacks Portuguese broom, Spanish broom, and French broom.

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	
Picloram *Tordon 22K*	**Rate:** Broadcast foliar treatment: 2 qt product/acre (non-cropland) or 1 qt product per acre (rangeland) plus 0.25 to 0.5% v/v surfactant to thoroughly wet all leaves. **Timing:** Foliar treatments are best when plants are growing rapidly at or beyond early to full bloom stage. **Remarks:** Picloram has long soil residual activity that will control germinating broadleaf plants. Picloram is a restricted use herbicide. It is not registered for use in California.
Triclopyr *Garlon 3A*, *Garlon 4 Ultra*, *Pathfinder II* Aminopyralid + triclopyr *Capstone*	**Rate:** Broadcast treatment: 2 to 3 qt *Garlon 4 Ultra*/acre (1 to 1.5 qt a.e./acre) or 3 to 4 qt *Garlon 3A*/acre (1.125 to 1.5 qt a.e./acre). Spot treatment: 0.75 to 1.5% v/v solution of *Garlon 4 Ultra*, or 1 to 1.5% *Garlon 3A* and water plus 0.25 to 0.5% v/v surfactant to thoroughly wet all leaves. Low volume/thinline treatment: 10% v/v solution of *Garlon 4 Ultra* plus a 20% v/v ethylated crop oil in water. Basal cut stump treatment: 20% v/v *Garlon 4 Ultra* in water. Cut stump: *Garlon 3A*, undiluted or 50% in water. Basal bark treatment: 20% v/v *Garlon 4 Ultra* in 20% v/v ethylated crop oil and water, or *Pathfinder II* (ready-to-use formulation). **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. **Remarks:** Selective herbicide for broadleaf species, will not injure grasses growing nearby. For cut stump treatment, cut stem horizontally at or near ground level and immediately apply herbicide solution. Roots may sucker after cutting, but the treatment should control most resprouts. For basal cut stump treatment, leave a higher stump and treat the cut surface and all the remaining bark. For basal bark treatment, spray the lower trunk, including the root collar, to a height of 12 to 15 inches; the spray should thoroughly wet the lower stem but not to the point of runoff. Plants should not be cut for at least one month after basal bark treatment. Triclopyr is also used in a premix with aminopyralid (*Capstone*) at 6 to 8 pt product/acre.
Triclopyr + 2,4-D *Crossbow*	**Rate:** Spot treatment: 0.5 to 1.5% v/v solution of *Crossbow* and water to thoroughly wet all leaves. **Timing:** Postemergence when plants are growing rapidly. **Remarks:** *Crossbow* in water forms an emulsion (not a solution).
AROMATIC AMINO ACID INHIBITORS	
Glyphosate *Roundup*, *Accord XRT II*, and others	**Rate:** Spot treatment: 1.5 to 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/thinline treatment: 10% v/v solution of *Roundup* (or other trade name) in water. Cut stump treatment: 25% v/v *Roundup* (or other trade name) in water; 50% can reduce resprouting but may exceed label rate if stands are dense. **Timing:** Foliar treatments should be made in late summer or early fall. For cut stump treatment, apply in late summer, early fall or dormant season; treat immediately after cutting. **Remarks:** Nonselective systemic herbicide that may kill partially-sprayed plants off target. It gives good control with some resprouts. Plants should not be cut for at least 4 months after foliar treatments. Cut

	stump applications are made as described for triclopyr.
BRANCHED-CHAIN AMINO ACID INHIBITORS	
Imazapyr *Arsenal*, *Habitat*, *Stalker*, *Chopper*, *Polaris*	**Rate:** Spot treatment: 1 to 2% v/v solution of *Stalker* plus 0.25 to 0.5% surfactant v/v in water to thoroughly wet all leaves. Low volume/thinline treatment: 10% v/v solution of *Stalker* plus a 20% v/v ethylated crop oil in water. Cut stump treatment: 20% v/v solution of *Stalker* plus a 20% v/v ethylated crop oil in water or 20% *Habitat* v/v in 80% water carrier. Basal bark treatment: 20% v/v solution of *Stalker* plus a 20% v/v ethylated crop oil in water. **Timing:** Postemergence when plants are growing rapidly. Best when used in late summer to early fall. **Remarks:** Soil residual herbicide; 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 treatment.

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.