Spartium junceum L.

Spanish broom

Family: Fabaceae
Range: Along the Pacific coast from Washington to southern California and Hawaii. Also found in other states as a cultivated ornamental (Utah, the Intermountain west, and Texas).
Habitat: Grasslands, shrublands, oak woodlands, forest margins, coastal habitats, riparian corridors and disturbed sites such as roadsides, pasture lands, gravelly floodplains, burned areas, cleared forests or other areas following a disturbance. Grows on poor, dry, stony and limestone soils in its native range. In California, Spanish broom typically inhabits mountainous regions including interior sites of the coastal mountains and in the foothills of the Sierra Nevada. Tolerates urban pollution, salt-laden winds near the coast, and temperatures as low as 14°F.
Origin: Native to the Mediterranean region and the Canary, Madeira, and Azores Islands. Introduced to the United States in the 1850s as an ornamental and for erosion control. Spanish broom was widely seeded in southern California along highways in the early 1900s following fires.
Impacts: Spanish broom grows rapidly and forms dense stands that most wildlife find impenetrable and unpalatable. Dense stems make regeneration of most other plant species difficult or impossible, 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 that thrive on high nitrogen levels.
Western states listed as Noxious Weed: California, Oregon, Washington
California Invasive Plant Council (Cal-IPC) Inventory: High Invasiveness

Spanish broom is a rapidly growing, deciduous shrub, 10 to 15 ft tall. The stems are long, smooth, slender, cylindrical and erect with few branches, appearing rush-like. Spanish broom leaves are small, 0.5 to 1 inch long, oval, and smooth-margined. Leaves are ephemeral, remaining on the plant for 4 months or less, giving the plant a leafless appearance. Because the leaves are small and deciduous, the stems are green and are the primary photosynthetic tissue of the plant.

The yellow, pea-like flowers are produced on current-year shoots in terminal racemes with several flowers. The flowers are large, up to 1 inch long, and grow on short stalks on both sides of the main stem. Reproduction is by seed and plants begin flowering from 18 months to 3 years of age. Seeds are produced in slightly flattened pods 1.5 to 4 inches long. When mature, pods are dark brown, covered with long, silky, silvery hairs, and contain 10 to 18 seeds. Seed dispersal occurs when 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)	Hand pulling can remove seedlings and small shrubs, but once established this technique is generally not effective. For larger established shrubs, a weed wrench or other woody weed extractor can be used. Care must be taken to extract the entire root or stump sprouting 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. Resprouts are common after treatment. Cutting broom at the end of the dry season can help reduce resprouting from the root crown. 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 effectively 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. Flowers and seeds of brooms contain quinolizidine alkaloids and can be toxic to humans and livestock when ingested. Foliage may be mildly toxic and is unpalatable to most livestock, except goats. Goats confined to a small area can help control resprouting stands after a cutting or burn treatment. Burning alone is not an effective method for controlling broom. Although burning can remove large amounts of debris, it can increase the population as it removes competitive vegetation, releases nutrients into the soil, and stimulates the germination of broom seeds left in the soil. Burning is more effective if followed with an herbicide application, subsequent burnings, and/or revegetation using desirable species. It is important to employ a control strategy following a burn, otherwise the broom population in subsequent years may become worse than before.
Biological	Three insects have been introduced as biological control agents on broom. These 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. **Timing:** Postemergence foliar treatments are best when plants are growing rapidly at or beyond early to full bloom stage. **Remarks:** High levels of picloram can give long-term soil activity for broadleaves. Picloram is a restricted use herbicide. It is not registered for use in California.
Triclopyr *Garlon 3A*, *Garlon 4 Ultra*, *Pathfinder II*	**Rate:** 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; apply to thoroughly wet all leaves. Low volume/thinline treatment: 10% v/v solution of *Garlon 4 Ultra* plus 20% v/v ethylated crop oil in water. Cut stump treatment: 20% v/v *Garlon 4 Ultra* in water, or undiluted *Garlon 3A* or 50% *Garlon 3A* in water. Basal bark or basal cut stump treatment: 20% v/v *Garlon 4 Ultra* in 20% v/v ethylated crop oil and water, or *Pathfinder II* as a ready-to-use formulation. **Timing:** Postemergence when plants are growing rapidly. Cut stump and basal bark treatments can be applied any time as long as the ground is not frozen. **Remarks:** Triclopyr is a selective herbicide for broadleaf species and will not damage desirable grasses growing nearby. For cut stump treatments, cut stems horizontally at or near ground level. For *Garlon 3A*, apply herbicide solution immediately after the stump is cut. Suckering from the roots typically occurs after cutting, but the treatment should control most resprouts. For basal bark treatment, treat to a height of 12 to 18 inches from the ground. Thorough wetting is necessary for good control. Plants should not be cut for at least one month after basal bark treatments.
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), and separation may occur unless the spray mixture is agitated continuously.
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 to 50% v/v *Roundup* (or other trade name) in water; higher rate can reduce resprouting but may exceed label rate if stands are

	dense. **Timing:** Postemergence when plants are growing rapidly. Foliar treatments should be made in late summer or early fall. For cut stump treatment, application in late summer, early fall or dormant season provides best control. Treatment should occur immediately after cutting. **Remarks:** Glyphosate is a nonselective systemic herbicide. It 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 *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; apply to thoroughly wet all leaves. Low volume/thinline treatment: 10% v/v solution of *Stalker* plus 20% v/v ethylated crop oil in water. Cut stump treatment: 20% v/v solution of *Stalker* plus 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 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:** 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 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.