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).**

Ulex europaeus L.

Gorse

Family: Fabaceae
Range: Although gorse occurs along the Atlantic coast from Virginia to Massachusetts, it is most prevalent along the Pacific coast from California to British Columbia and is also found at high elevation on two Hawaiian Islands.
Habitat: Grasslands, shrublands, forest margins, coastal habitats and disturbed sites such as roadsides, pasture lands, gravelly floodplains, burned areas, and cleared forests. Grows well on shady slopes with high soil moisture and good drainage. Frost-damaged plants can resprout from the crown. Does not survive severely cold winters or arid climates. It grows best on acidic soil and tolerates many soil types, including serpentine, but seldom grows in high calcium soils.
Origin: Native to western Europe and introduced as an ornamental or hedge shrub.
Impacts: Gorse often forms dense, impenetrable thickets that exclude desirable vegetation and increase fire risk. Mature plants contain about 2 to 4% flammable oils. Gorse can fix nitrogen, enabling the plant to colonize and dominate areas with poor soil. The plant also produces abundant leaf litter that can acidify the upper soil layers. Soil is often bare between individual plants, increasing erosion on steep slopes where gorse has replaced grasses or forbs. Plants are spiny and mostly unpalatable when mature, thus reducing pasture quality.
Western states listed as Noxious Weed: California, Oregon, Washington
California Invasive Plant Council (Cal-IPC) Inventory: High Invasiveness

Gorse is a dense, spiny, evergreen shrub to 5 ft tall, with yellow, pea-like flowers. The stems are highly branched, alternate and terminate with a green spine 1.5 to 2.5 inches long. Juvenile plants have soft, grey-green stems with trifoliate leaves. Mature shrubs appear leafless with simple leaves modified into stiff, curved, awl-like spines 0.25 to 1 inch long. Spines and leaves have a waxy coating and end in a sharp yellow point. Gorse has an extensive, lateral root system that contains nitrogen-fixing root nodules.

Plants begin flowering from 18 months to 3 years of age. Reproduction is by seed which are produced in small, hairy pods 0.5 to 0.75 inches long. Pods become black when mature, and upon drying, disperse seeds by ejecting them 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. Cutting gorse off before it flowers will reduce seed production and deplete the plant's energy reserves. Resprouts are common after treatment. 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 gorse in areas where soil disturbance and nonselective species removal are not important considerations. Stumps that remain following such treatment will require herbicide application to prevent regrowth.
Cultural	Repeated grazing by goats and/or sheep can greatly reduce seedling establishment and crown regrowth. In a long-term study, the best control of gorse was achieved by first burning gorse stands, followed by grazing goats or a 2:1 mix of goats and sheep at 10 or more animals/acre. On areas of unburned gorse, sustained goat stocking for 4 to 5 years provided good control in some situations. Once animals are removed, new seedlings must be controlled.

	Burning alone does not kill the root system and resprouts are common after treatment. Burning often stimulates a flush of seedling germination after the first rains. Following a burn with herbicide application provides good control.
Biological	The gorse seed weevil (*Exapion ulicis*) and spider mite (*Tetranychus lintearius*) are biocontrol agents that have become established in California. The seed weevil reduces seed production but cannot kill established stands. The seed weevil was first introduced to New Zealand in 1931, and was widely established by 1935. It has destroyed approximately 35% of the seed crop annually since then. Heavy mite *(Tetranychus lintearius)* infestations can kill branches and reduce overall plant vigor and are apparent by the dense webbing that covers the foliage.

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 treatment: 1 to 2 qt product/acre (0.5 to 1 lb a.e./acre). Spot treatment: 0.5% v/v solution and water plus 0.25 to 0.5% v/v surfactant to thoroughly wet all leaves. **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:** Low volume spot treatment: 0.5 to 2% v/v solution of *Garlon 4 Ultra*, or 0.5 to 2% *Garlon 3A* and water plus 0.25 to 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 undiluted *Pathfinder II* as a ready-to-use formulation. Basal cut stump treatment: 25% *Garlon 4 Ultra* in 75% oil carrier. **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 used in late summer or early fall. **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, and immediately apply herbicide solution. Suckering from the roots typically occurs after cutting, but the treatment should control most resprouts. 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:** Spot treatment: 1 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:** Spray-to-wet 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 spot treatment: 5 to 10% v/v solution of *Roundup* (or other trade name) in water. Spray coverage should be uniform with at least 50% of the foliage contacted. Cut stump treatment: undiluted product or 50% v/v in water. **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:** Nonselective systemic herbicide; 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	
Metsulfuron *Escort*	**Rate:** Broadcast foliar treatment: 1 oz product/acre (0.6 oz a.i./acre) plus 0.25% v/v surfactant. **Timing:** Postemergence foliar treatments are best when plants are growing rapidly at or beyond early to full bloom stage. **Remarks:** Although metsulfuron has some preemergent activity, best results are generally obtained when applied to the foliage during active growth. Metsulfuron is 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.