Sesbania punicea (Cav.) Benth.

Red sesbania

Family: Fabaceae
Range: Not widespread in the western United States. Occurs throughout the southeast from Virginia to eastern Texas and a few localities in California.
Habitat: Riparian corridors, coastal plains and disturbed sites such as roadsides, ditches, canals and areas adjacent to ornamental plantings. In regions with long, dry summers, red sesbania invades moist areas. Survives occasional freezes but not harsh winters. It is most likely to spread to wildlands adjacent to or downstream from ornamental plantings.
Origin: Native to South America (Argentina, Brazil, Paraguay, and Uruguay). Introduced to the United States as an ornamental.
Impacts: Red sesbania grows rapidly and forms dense stands so thick that access to riparian areas becomes difficult to impossible. It displaces native vegetation used by wildlife and contributes to bank erosion and flooding. Large infestations can decrease water flow and reduce recreational uses. Sesbania can fix nitrogen, which enables the plant to colonize and dominate areas with poor soil. Increased soil nitrogen fertility gives a competitive advantage to other non-native weeds that thrive on high nitrogen levels. Foliage, flowers and seeds contain sesbanimides and saponins that are toxic to humans and animals when ingested. A dose of less than 0.1% of body weight in seeds ingested over a period of days can be lethal.
California Invasive Plant Council (Cal-IPC) Inventory: High Invasiveness (Alert)

Red sesbania is a deciduous shrub or small tree, up to 12 ft tall. The leaves are 3 to 8 inches long, alternate, pinnate-compound and often drooping. Leaflets are mostly even, 10 to 40 per leaf, oblong, 0.5 to 1 inch long and end in a tiny pointed tip. The bark is gray to reddish brown in color and covered with lenticels (airy aggregation of cells that function as a pore, providing a medium for gas exchange between the internal tissues and atmosphere).

The fruit and flowers of *sesbania* are characteristic of the legume family. Showy coral or red flowers are 0.5 to 1 inch long and hang in clusters up to 10 inches long. The distinctive seed pods are longitudinally 4-winged, oblong, 2 to 4 inches long and are often dispersed by water where the pods float and the wings act like sails. Pods are sharply pointed, contain 4 to 10 seeds separated by partitions and make a characteristic rattling sound when shaken. Reproduction is solely by seed production. Plants generally begin to fruit at 2 to 3 years of age and individual trees can survive for up to 15 years. The seed bank is often limited, with seed longevity less than 3 years.

Non-chemical control

Mechanical (pulling, cutting, disking)	Hand pulling can remove seedlings and young plants. The root system is not very large, especially in waterlogged situations, so pulling is relatively easy. Cutting sesbania to ground level in spring before it flowers will reduce the number of seeds produced and will deplete the plant's energy reserves. The effectiveness of mechanical methods is increased as *Sesbania punicea* does not produce root sprouts when the shoot is damaged. Stump sprouting can occur, however, and cutting should be combined with an herbicide treatment or with multiple cuttings over a period of years to maximize efficacy. Cut shrubs at ground level with power or manual saws. Heavy equipment can be effective but is often not practical, as populations are frequently in waterlogged soils or near riparian areas where access can be limited or difficult. Stumps remaining following such

	treatment will require herbicide application to prevent regrowth.
Cultural (burning, grazing)	Grazing is not recommended as sesbania is toxic when ingested. A technique known as "flaming" or "blanching" which consists of passing a flame over the plant is very effective at controlling emerging seedlings, but not resprouting stumps, especially those in areas with a high water table. Prescribed burning can be used to regulate *S. punicea* in grasslands when conditions are dry, but only seedlings and small plants are killed outright. Large plants are mostly only scorched and usually resprout.
Biological	No USDA-approved biocontrol agents exist for this species; however three biocontrol agents are used against *Sesbania punicea* in South Africa. A very successful biological control program has kept red sesbania under control in many parts of South Africa since the 1980s. The program includes three introduced agent species; *Trichapion lativentre*, a bud-feeding weevil that feeds on the leaflets as adults and develops within the flower buds as larvae; *Rhyssomatus marginatus*, a weevil whose larvae destroy the ripening seeds within the pods and whose adults feed on the leaves, flowers and meristems of the plants; and *Neodiplogrammus quadrivittatus*, a large stem-boring weevil whose larvae tunnel in the stems and branches causing structural damage, especially to vascular tissues, which eventually kills the plants. All three beetles act in combination to improve control. The bud feeder destroys almost all (> 98%) of the flowers and reduces seed production dramatically. The seed feeder destroys 84% of the seeds that are produced in spite of damage caused by the bud feeder. Together these two species reduce seed production by > 99.8%, rendering the plants almost sterile.

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	
Triclopyr *Garlon 3A*, *Garlon 4 Ultra*, *Pathfinder II*	**Rate:** Foliar treatment: 0.5% v/v solution of *Garlon 4 Ultra* to thoroughly wet all leaves. Cut stump treatment: 0.5 to 1.5% *Garlon 4 Ultra* v/v in water, or 3% *Garlon 3A* v/v in water. *Pathfinder II* is a ready to use formulation. **Timing:** Apply when plants are growing rapidly. **Remarks:** Triclopyr is a selective herbicide to control broadleaf species. For cut stump treatments, cut stems horizontally at or near ground level. Apply herbicide solution immediately after cutting.
Other growth regulator tank mixes and premixes	Tank mixes that include 2,4-D and dicamba, 2,4-D and aminopyralid (*Forefront HL*), and triclopyr and fluroxypyr (*PastureGard*) have also been shown to effectively control red sesbania.
AROMATIC AMINO ACID INHIBITORS	
Glyphosate *Rodeo*, *Aquamaster*	**Rate:** Foliar treatment: 1 to 1.5% v/v solution of *Rodeo* or *Aquamaster* in water, applied to thoroughly wet all leaves. Cut stump treatment: 10% *Roundup* (or other trade name) v/v in water. **Timing:** Apply 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 with no soil activity. Plants should not be cut for at least 4 months after foliar treatments.
BRANCHED-CHAIN AMINO ACID INHIBITORS	
Imazapyr *Habitat*	**Rate:** Cut stump treatment: 2% v/v solution of *Habitat*. **Timing:** Best when used in late summer to early fall, but before leaf drop. **Remarks:** Imazapyr is a soil residual herbicide and may result in bare ground around trees for some time after treatment. Cut stump applications are as described for triclopyr. *Habitat* is the aquatic formulation of imazapyr and is recommended in most situations.

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.