Erodium cicutarium (L.) L'Hér. Ex Ait.

Redstem filaree

Family: Geraniaceae
Range: Throughout the United States, and in every western state.
Habitat: Roadsides, pastures, fields, grassland, rangeland, waste places, agronomic and vegetable crops, orchards, vineyards, and landscaped areas. Primarily associated with open disturbed sites.
Origin: Native to Eurasia. Redstem filaree was well established in the western United States before the arrival of the Spanish missionaries and their livestock in 1769.
Impact: Can form a dominant cover in rangelands, particularly following a burn. Does not provide good wildlife cover. Like other members of the genus, redstem filaree provides good livestock and wildlife forage before maturity.
Western states listed as Noxious Weed: Colorado
California Invasive Plant Council (Cal-IPC) Inventory: Limited Invasiveness

Redstem filaree is a common winter annual with alternate pinnate-lobed or -compound leaves 1.5 to 4 inches long, with 9 to 13 leaflets that are ovate with deeply lobed margins or dissected segments. Plants have a taproot and exist as low growing rosettes until flowering stems develop in late winter or spring. When mature they can reach 2 ft tall. The stems and leaf stalks are often reddish.

The flowers are in simple umbels, with 2 to 10 per cluster. They are pink to reddish-lavender with five separate petals. The immature fruits (schizocarps) consist of five fused ovary sections (carpels) and five elongated styles united to form a style column or beak about 1 to 2.5 inches long, the entire unit resembling a stork's head and beak. Each carpel with its associated style separates from the unit at maturity and is called a mericarp. Styles are twisted in the lower portion, sharply curved near the middle to form a right angle, with stiff upward-pointing hairs on one side. Style coils tighten under dry conditions and loosen under humid conditions to help drill seeds into the soil. Plants reproduce only by seed. Mericarps usually separate explosively and are propelled a short distance from the parent plant. Some mericarps disperse to greater distances with soil movement and especially by clinging to the fur, feathers, and feet of animals, and the shoes and clothing of people. Most seeds germinate in fall after the first significant rainfall of the season. Seeds can remain viable for many years in the soil, forming extensive seed banks.

NON-CHEMICAL CONTROL

Mechanical (pulling, cutting, disking)	Manual removal or cultivation before fruits develop can help to control filaree.
Cultural	Spring and summer burns generally increase the abundance of filaree the following year, while fall burning appears to have no effect.
Biological	No biocontrol agents have been introduced for any *Erodium* species.

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	
2,4-D Several names	**Rate:** 0.5 to 2 pt product/acre (0.21 to 0.85 lb a.e./acre) **Timing:** Postemergence to rapidly growing plants up to flowering. Smaller plants are more effectively controlled. **Remarks:** 2,4-D is broadleaf-selective and has no soil activity. It may require repeat application. 2,4-D is not the most effective treatment, but is widely used because of low cost. Do not apply ester formulations when outside temperatures exceed 80°F.
Aminocyclopyrachlor + chlorsulfuron *Perspective*	**Rate:** 3 to 4.5 oz product/acre **Timing:** Postemergence in spring up to flowering. **Remarks:** Very effective for the control of filaree. *Perspective* provides broad-spectrum control of many broadleaf species. Although generally safe for grasses, it may suppress or injure certain annual and perennial grass species. Do not treat in the root zone of desirable trees and shrubs. Do not apply more than 11 oz product/acre per year. At this high rate, cool-season grasses will be damaged, including bluebunch wheatgrass. Not yet labeled for grazing lands. Add an adjuvant to the spray solution. This product is not approved for use in California and some counties of Colorado (San Luis Valley).
Aminopyralid + metsulfuron *Opensight*	**Rate:** 3 to 3.3 oz product/acre **Timing:** Postemergence, in spring from rosette to flowering stages, or in fall to seedlings and rosettes. **Remarks:** Do not use in situations where forage will be harvested for hay to be moved offsite. It is expected that the combination would be effective on filaree since metsulfuron alone will provide control. Not registered for use in California.
Dicamba *Banvel*, *Clarity*	**Rate:** 8 to 32 oz product/acre (0.25 to 1 lb a.e./acre); 8 to 16 oz for rosettes, up to 32 oz product/acre for bolting plants **Timing:** Postemergence to rapidly growing plants up to flowering. Smaller plants are more effectively controlled. **Remarks:** Dicamba is a broadleaf-selective herbicide often combined with other active ingredients. It is effective earlier in the season than 2,4-D. It is also effective when tank-mixed with 2,4-D (0.75 lb a.e./acre dicamba + 0.25 lb a.e./acre 2,4-D). Dicamba has very limited soil residual. Do not apply when outside temperatures exceed 80°F.
AROMATIC AMINO ACID INHIBITORS	
Glyphosate *Roundup*, *Accord XRT II*, and others	**Rate:** 2 to 3 pt product (*Roundup ProMax*)/acre (1.1 to 1.7 lb a.e./acre) **Timing:** Postemergence to rapidly growing plants. **Remarks:** Glyphosate has no soil activity. It is a nonselective herbicide. Repeat applications may be necessary as it provides only partial control of filaree. Effectiveness is increased by addition of ammonium sulfate.
BRANCHED-CHAIN AMINO ACID INHIBITORS	
Chlorsulfuron *Telar*	**Rate:** 1 to 2 oz product/acre (0.75 to 1.5 oz a.i./acre) **Timing:** Postemergence to young, rapidly growing plants in spring before flowering, or in fall to new rosettes **Remarks:** Chlorsulfuron has mixed selectivity and is generally safe on grasses. Use a surfactant. It has a fairly long soil residual.
Imazapic *Plateau*	**Rate:** 8 to 12 oz product/acre (2 to 3 oz a.e./acre) **Timing:** Most effective postemergence. **Remarks:** Imazapic is a broad-spectrum herbicide that has some soil residual activity. Not registered for use in California.
Imazapyr *Habitat*, *Stalker*, *Arsenal*, *Chopper*, *Polaris*	**Rate:** 2 pt product (*Habitat*)/acre (0.5 lb a.e./acre) **Timing:** Preemergence or postemergence **Remarks:** Imazapyr is a nonselective herbicide. It has a relatively long soil residual activity.
Metsulfuron	**Rate:** 0.33 to 0.5 oz product/acre (0.2 to 0.3 oz a.i./acre)

Escort	**Timing:** Postemergence to young, rapidly growing plants in spring before flowering, or in fall to new rosettes **Remarks:** Metsulfuron has mixed selectivity and is generally safe on grasses. Use a surfactant. It can be tank-mixed with 2,4-D and/or dicamba and has some soil residual activity. Not registered for use in California.
Metsulfuron + chlorsulfuron *Cimarron X-tra*	**Rate:** 0.5 oz product/acre **Timing:** Postemergence to rapidly growing plants before flowering. **Remarks:** Safe on established grasses. Not registered for use in California.
Rimsulfuron *Matrix*	**Rate:** 4 oz product/acre (1 oz a.i./acre) **Timing:** Preemergence. **Remarks:** Rimsulfuron controls several annual grasses and broadleaves. Perennial grasses are tolerant to fall applications when established and grown under dryland conditions. Application to rapidly growing or irrigated perennial grasses may result in injury or death of the crop. It provides soil residual control in cool climates but degrades rapidly under warm conditions. Rimsulfuron will not control summer annual weeds when applied in fall or spring. Add a surfactant when applying postemergence.
Sulfometuron *Oust* and others	**Rate:** 6 to 8 oz product/acre (4.5 to 6 oz a.i./acre) **Timing:** Preemergence or early postemergence, during the rainy season when weeds are germinating or rapidly growing. **Remarks:** Sulfometuron has mixed selectivity, but is fairly safe on native perennial grasses, especially wheatgrass. Other desirable grasses may be stunted, stressed, or injured. Good for revegetation use. It has fairly long soil residual activity. Use lower rates in arid areas.
Sulfometuron + chlorsulfuron *Landmark XP*	**Rate:** 4.5 oz product/acre **Timing:** Preemergence or early postemergence. **Remarks:** See sulfometuron. Rates are based on rates reported for Carolina geranium.
PHOTOSYNTHETIC INHIBITORS	
Hexazinone *Velpar DF*	**Rate:** 2.67 to 6.67 lb product/acre (2 to 5 lb a.i./acre) **Timing:** Preemergence or early postemergence to seedlings. **Remarks:** Hexazinone is a broad-spectrum herbicide that is mobile in the soil and has long soil residual activity. It provides only suppression of filaree. It should not be used in areas with a shallow water table. Hexazinone is best used in areas with high densities of filaree, medium to shallow soils, away from watercourses, and away from trees. High rates of hexazinone can create bare ground, so only use high rates in spot treatments.

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.