Vulpia myuros (L.) C. Gmel.
(= *Festuca myuros* L. [Jepson Manual 2012])

Rattail fescue

Family: Poaceae
Range: Much of the western United States, except North and South Dakota, Wyoming and Colorado. Widespread in the coastal states.
Habitat: Disturbed and undisturbed open areas, including dry and seasonally wet sites, roadsides, rangeland, pastures, fields, occasionally agronomic fields, grassland, slopes, washes, open areas in many plant communities, including chaparral and open woodland. It tolerates drought, some shade, very poor sandy soil, shallow soil, and acidic soil.
Origin: Uncertain; thought to have originated from Europe.
Impacts: Rattail fescue is considered to be a poor forage grass for livestock. At maturity, the sharp florets can injure the mouths, nostrils, and eyes of grazing animals. In mixed-conifer forests of the Sierra Nevada, rattail fescue can outcompete conifer seedlings for root space, nutrients, and water. Rattail fescue has also been shown to interfere with the establishment and/or growth of rare native California herbs in vernal pools or other sensitive sites [e.g., San Diego mesamint (*Pogogyne abramsii*) and large-flowered fiddleneck (*Amsinckia grandiflora*)]. It is also a major problem in pastures and agronomic crops in southern Australia. A commercial cultivar is sometimes used as a cover crop, for erosion control, or to reestablish vegetation on highly degraded sites, such as mined areas.
California Invasive Plant Council (Cal- IPC) Inventory: Moderate Invasiveness

Rattail fescue is a winter annual to 2 ft tall. Rattail fescue is one of the widespread, non-native annual grasses that have naturalized throughout much of the western United States. The leaves are rolled in bud, 1 to 3 mm wide, usually less than 8 inches long, with the upper surface glabrous, scabrous, or covered with short stiff hairs. The ligules are membranous and short, 0.2 to 0.6 mm long, often longer on the sides. The root system is fibrous and typically shallow.

The inflorescence of rattail fescue is a narrow, spike-like panicle, mostly 2 inches to 1 ft long, and less than 1 inch wide. It is fairly dense, and sometimes one-sided. Plants reproduce only by seed, which disperse short distances by falling to the ground beneath the parent plant. Longer dispersal can occur when seeds cling to the fur of animals. In Australia, the seedbank is reported to survive for about 3 years.

The genus *Vulpia* is occasionally included within the *Festuca* genus, but unlike most *Festuca*, *Vulpia* species are annual. There are other problematic non-native *Vulpia* species, including squirreltail fescue (*Vulpia bromoides* (L.) Gray) and six-weeks fescue (*Vulpia octoflora* (Walter) Rydb.), but they are not nearly as common as rattail fescue. In addition, there is a native species, small fescue (*Vulpia microstachys* (Nutt.) Munro), which is considered a desirable species and often included in restoration seed mixes.

NON-CHEMICAL CONTROL

Mechanical (pulling, cutting, disking)	Hand pulling rattail fescue may be effective early in spring before the seed sets, but this is very labor intensive and is only used on small infestations. Minimize soil disturbance when hand pulling to avoid stimulating new germination. Mowing or string trimming can also be used to reduce rattail fescue if done before the seed sets in early summer. Because rattail fescue is shallowly rooted, it tends to be intolerant of tillage. Deep cultivation to bury the seeds in fall before the first rain, followed by manual removal of seedlings, can help control this species in crop fields. Most seeds do not survive burial. Shallow cultivation to stimulate germination in fall or spring,

	followed by a subsequent cultivation to kill seedlings, can also be effective.
Cultural	Rattail fescue is favored by most disturbances, including fire. Fire has limited use in controlling rattail fescue. Spring prescribed burning conducted in the boot or dough stage, before seed release, may temporarily reduce rattail fescue by destroying the current-year seed crop. However, early spring fire may also kill the current-year seeds of native plants. Rattail fescue is not particularly palatable and often persists in areas that are heavily grazed. On California annual rangelands, rattail fescue may increase under moderate to heavy grazing at the expense of more palatable grasses. In an Australian study, however, rattail fescue was significantly reduced by strategically timed heavy grazing for a few weeks in spring to reduce seed production and for a period in fall to limit seedling survival.
Biological	No known biological agents are available for control of any species of *Vulpia*.

CHEMICAL CONTROL

The following specific use information is based on published papers or 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.

LIPID SYNTHESIS INHIBITORS	
Sethoxydim, fluazifop, and clethodim *Poast, Fusilade,* and *Select* or *Envoy*	**Rate:** 1.5 to 2 pt product/acre **Timing:** Postemergence, to young plants. **Remarks:** These are all grass-selective herbicides that have no effect on broadleaf species and no soil activity. Apply with a crop oil concentrate surfactant. Partial control was achieved with all these products on rattail fescue, but they are not typically effective on members of the genus *Vulpia* or *Festuca*.
AROMATIC AMINO ACID INHIBITORS	
Glyphosate *Roundup, Accord XRT II*, and others	**Rate:** 1.5 to 2.5 pt product (*Roundup ProMax*)/acre (0.84 to 1.4 lb a.e./acre) for early postemergence treatment. For sequential treatments, apply at 1 to 1.5 pt product/acre early and late postemergence. **Timing:** Best applied postemergence to plants in the early to mid-tiller stages of growth (2 to 5 tillers per plant). Control with glyphosate is less satisfactory at the seedling stage, or after the plants develop 5 to 10 tillers. In other studies, a late fall application of glyphosate, timed after annual grass seedling emergence but before emergence of native perennial grass seedlings, gave good control of rattail fescue and promoted native forbs. **Remarks:** Glyphosate is only marginally effective in controlling rattail fescue and often requires the use of a higher application rate for adequate control. Glyphosate is a nonselective herbicide. It has no soil activity. Add ammonium sulfate to spray solution to ensure good activity by lowering the pH and preventing glyphosate from complexing with divalent cations and reducing its concentration in the spray solution.
BRANCHED-CHAIN AMINO ACID INHIBITORS	
Imazapic *Plateau*	**Rate:** 8 to 12 oz product/acre (2 to 3 oz a.e./acre) **Timing:** Preemergence in late summer to fall, or postemergence in fall to very early winter. In colder climates, spring applications after snow melt are better than fall treatments. The stage of growth of annual grasses can be critical to the effectiveness of imazapic. Late winter applications when annual grasses have 1 to 4 leaves and have not tillered can be effective, but control is not as effective on larger grasses. **Remarks:** Imazapic has been shown to be very effective on rattail fescue with a preemergence application. Postemergence application can also provide control, but control is only partial. Imazapic has mixed selectivity and tends to favor members of the Asteraceae. It has long soil residual activity. It can tie up in litter, so its efficacy may be reduced under situations where there is heavy thatch on the soil surface. Imazapic is not registered for use in California.
Propoxycarbazone-sodium *Canter R+P*	**Rate:** 0.9 to 1.2 oz product/acre (0.63 to 0.84 oz a.i./acre) **Timing:** Postemergence, from the 2-leaf to 2-tiller stage when plants are growing rapidly. **Remarks:** Propoxycarbazone is a broad-spectrum herbicide that will control many species. It will

	provide only partial control of rattail fescue. Perennial grass species vary in tolerance. A non-ionic surfactant should be added at 0.25 to 0.5% v/v solution.
Sulfometuron *Oust* and others	**Rate:** 1.33 to 5 oz product/acre (1 to 3.75 oz a.i./acre). For comparison, rates for control of annual bromes are 0.75 to 2 oz product/acre in locations with less than 20 inches of annual rainfall, and 3 to 5 oz product/acre in areas with more than 20 inches of annual rainfall. **Timing:** Preemergence or postemergence. Fall and spring applications can both be effective. **Remarks:** Sulfometuron has been used to control rattail fescue in Australian pastures. Sulfometuron has mixed selectivity. Minor damage can occur to some native perennial grasses. It has a fairly long soil residual. Higher rates may increase control but will also give more bare ground.
Sulfosulfuron *Outrider*	**Rate:** 0.55 oz product/acre (0.4 oz a.i./acre) **Timing:** Postemergence. Early stages of growth appear to be more susceptible. **Remarks:** Results are variable, depending on site and year. Control with a single treatment can range from 30 to 95%.
CONTACT PHOTOSYNTHETIC INHIBITORS	
Paraquat *Gramoxone*	**Rate:** 0.75 to 2 pt product/acre (3 to 8 oz a.i./acre) **Timing:** Postemergence, to rapidly growing plants. Most effective on plants at the beginning of the flowering stage. **Remarks:** Paraquat gives fair control of rattail fescue (about 80%) when applied at anthesis. Paraquat is nonselective on annual species. It is a non-systemic herbicide that only kills contacted foliage and has no soil activity. Paraquat is a restricted use herbicide that is highly toxic to animals. The formulation has a stenching agent.

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.