Zigadenus spp.
(= *Toxicoscordion* spp.)

Deathcamas

Family: Liliaceae
Range: Members of the genus *Zigadenus* are found throughout the United States, including the western states.
Habitat: The specific habitat varies with the species. Meadow deathcamas (*Z. venenosus* S. Wats.) inhabits moist or dry places in grassland, forest, coastal scrub, and rocky slopes. Foothill deathcamas (*Z. paniculatus* (Nutt.) S. Wats.) inhabits dry places in sagebrush scrub, grassland, and coniferous forest. Other species inhabit chaparral, open woodlands, desert, seasonally moist sites, and marshes.
Origin: All species are native to North America.
Impacts: The foliage and bulbs contain an array of steroidal alkaloids and are toxic to livestock. The quantity of alkaloids in plant materials varies between species. Meadow and foothill deathcamas are the most toxic species and are poisonous to all livestock. Ingestion of meadow deathcamas at about 0.4% of body weight or more can produce toxicity symptoms, usually within 24 hours of ingestion. Sheep are generally the most susceptible to poisoning. Cattle can be poisoned, especially in early spring when deathcamas is one of the first plants to green up. Humans have been poisoned when they mistake deathcamas for wild onion. Deathcamas species are generally not considered weeds in natural areas.

All *Zigadenus* species are perennials with simple stems to nearly 3 ft tall. Plants exist as a rosette of linear leaves before flowering stems develop in spring. The leaf blades of deathcamas are basal, smooth, and V-shaped in cross-section. The leaves are more succulent than grasses. Roots arise from a dark brown to black coated, onion-like bulb 0.5 to 2.5 inches in diameter. The bulbs of deathcamas lack the distinctive odor of onions. Above-ground growth commences in fall or spring, depending on the region. The bulbs can persist in a dormant state for decades with little growth or flowering.

Flowers of deathcamas are mostly erect, bisexual and/or staminate, in panicles or racemes. Each fruit produces numerous seeds, and the dead stems with capsule remnants can persist into winter. This can aid in identifying infested areas. Most seeds fall near the parent plant. Seed viability has been reported above 80%. Mean germination was 48% under field conditions in Central Cascades Ponderosa Pine forest. Little information is available on seed longevity in the soil.

NON-CHEMICAL CONTROL

Mechanical (pulling, cutting, disking)	Hand-pulling and digging are effective controls but often impractical if infestations span a large area. Remove the bulb to prevent regrowth. Plants quickly regrow after mowing. Mowing can be used to remove green foliage in early spring but is not an effective control. Repeated tillage can suppress deathcamas, but plants often resprout from bulbs left in the soil.
Cultural	After a fire deathcamas often regrows from protected bulbs in the soil, although summer burning has been shown to suppress deathcamas the following year. Deathcamas is toxic to livestock. Avoid grazing when adequate forage is not available or when deathcamas populations are dense. Deathcamas poisoning normally occurs in early spring as deathcamas greens up before most grasses. Animals usually will not freely choose deathcamas provided other forage is available.

	Improving range conditions and reseeding perennial grasses can help suppress deathcamas.
Biological	No biological control agents are available for the control of any deathcamas species, primarily because they are all native to North America.

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.

GROWTH REGULATORS	
2,4-D Several names	**Rate:** 1.5 to 2 qt product/acre (1.43 to 1.9 lb a.e./acre) **Timing:** Postemergence when plants have 3 to 6 leaves in spring. **Remarks:** Broadleaf-selective and safe on most grasses. 2,4-D has minimal soil activity. Do not apply ester formulation when outside temperatures exceed 80°F. Add a surfactant.

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.