

WATCH OUT *for* Leafy spurge

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Invasive weeds are non-native plants that invade ecosystems and replace native plants. Noxious weeds are usually invasive and designated by State law as priority plants that require control by landowners. These weeds can reduce grazing land and impact wildlife habitat. Early detection and quick response is critical to slow spread and protect weed-free areas. The purpose of this bulletin is to provide early control methods for leafy spurge (*Euphorbia esula*). Contact your county weed coordinator or Extension agent for management of large infestations.

Leafty spurge (Spurge Family) is a native of Eurasia. It was introduced to North America as a seed impurity. It was first recorded in Massachusetts during 1827 and quickly spread to North Dakota during the early 1900s. This plant is an extremely aggressive, long-lived, rhizomatous perennial. Flowers are yellowish-green and arranged in numerous small clusters, subtended by paired, heart-shaped yellow-green bracts that are often mistaken for flowers. Leaves are narrow and alternate on the stem. The leaves and stems are smooth and hairless and pale green or blue-green in color. The entire plant contains white, milky latex. Mature plants can reach 2 to 4 feet tall.

Habitat and impacts

Leafy spurge occurs in rangeland, pastures, prairies, roadsides, streams and ditches, and waste areas. It is adapted to many habitat types that range from riparian sites to dry hillsides. This plant can invade rangeland in excellent condition. It is most aggressive in dry sites where plant competition is less intense. Leafy spurge will thrive on many soil types. It is most abundant on coarse-textured soils and least abundant on clayey soils. Spurge is one of the earliest plants to emerge in the spring and one of the last plants to enter dormancy in the fall. This early- and late-season growth makes leafy spurge more competitive over native plants.

Biology and spread

Leafy spurge reproduces by vegetative shoots and seeds. It primarily reproduces vegetatively with an extensive lateral root system that is capable of producing adventitious buds. Roots can spread laterally 15 feet per year and reach nearly 30 feet in depth. The extensive root system of leafy spurge stores large nutrient reserves. These reserves can sustain the plant for years, enabling it to survive drought, grazing stress, and herbicide treatments. It is important to eradicate new invasions early before mature root systems develop.



Leafy spurge has pointed leaves and clusters of yellow flowers with large, yellow-green bracts.

Photo by B. Rice (TNC)

Flowering generally begins during mid-June and ends in mid-July. Plants flower throughout the summer and fall and produce seeds until frost. Most seed production is completed by mid-August. A large plant can produce up to 130,000 seeds that remain viable in the soil 7 years or longer. Seed capsules “explode” at maturity and project seeds up to 15 feet from the parent plant. Germination can occur any time adequate moisture is available.



If left untreated, new plants may form dense colonies that can reduce forage production and wildlife habitat.

Photo by B. Rice (TNC)

Leafy spurge seeds are dispersed along roads, railways, and waterways. Seeds can be transported by water, wildlife, livestock, vehicles and agriculture and construction equipment. Seeds are also dispersed to new sites in mud on boots and impure materials like mulch, forage and feed grains, crop and grass seed, top soil, and gravel. New infestations can also originate from vegetative buds on root pieces transported by equipment.



Photo by W. Ciesla

Early control methods

Young, individual seedlings may be hand-pulled before an extensive root system develops. Small patches with developed root systems should be treated with herbicides. Follow-up applications will be necessary to impact the root system and ensure vegetative reproduction and seed production is prevented.

Herbicide selection and timing should be advised by your county weed coordinator and application must follow label directions. Applications of 2,4-D alone are not very effective. Roots may rapidly sprout new growth and repeated applications are usually required. But this herbicide may be the only cost-effective choice near water. Include surfactants to improve herbicide performance.

- Picloram (Tordon®) applied at a rate of 2 to 4 quarts/acre when flowers emerge or in the fall. Herbicide symptoms will appear faster when tank mixed with 2,4-D at a rate of 2 quarts/acre.
- Imazapic (Plateau®) applied during late fall at a rate of 12 ounces/acre with methylated seed oil. The rate should be closely followed to prevent damage to native plants. Contact your county weed coordinator for assistance and product availability.

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Stems and leaves of leafy spurge often turn reddish brown during hot, dry periods in the summer or due to senescence in the fall.

Prevent leafy spurge spread and colonization by locating and eradicating new plants and patches. The key to eradication is 100% control to prevent reinvasion and eliminate root reserves. Prevent invasion by using weed-free mulch, forage and feed grains, crop and grass seed, top soil, and gravel. Monitor sites for new weeds where at-risk material was used. Revegetate disturbed areas with native grasses and maintain healthy and competitive native plant communities. Encourage outdoor users to clean equipment, remain on trails, and report new invasions.