



**Leafy Spurge**

*Euphorbia esula* L.

Spurge family (Euphorbiaceae)

**NATIVE RANGE**

Europe and Asia

**DESCRIPTION**

Leafy spurge is characterized by plants containing a white milky sap and flower parts in three's. Leafy spurge is an erect, branching, perennial herb 2 to 3½ feet tall, with smooth stems and showy yellow flower bracts. Stems frequently occur in clusters from a vertical root that can extend many feet underground. The leaves are small, oval to lance-shaped, somewhat frosted and slightly wavy along the margin. The flowers of leafy spurge are very small and are borne in greenish-yellow structures surrounded by yellow bracts. Clusters of these showy, yellow bracts open in late May or early June, while the actual flowers do not develop until mid-June.



**ECOLOGICAL THREAT**

Leafy spurge displaces native vegetation in prairie habitats and fields through shading and by usurping available water and nutrients and through plant toxins that prevent the growth of other plants underneath it. Leafy spurge is an aggressive invader and, once present, can completely overtake large areas of open land.



**DISTRIBUTION IN THE UNITED STATES**

Leafy spurge occurs across much of the northern U.S., with the most extensive infestations reported for Montana, North Dakota, Nebraska, South Dakota, and Wyoming. It has been identified as a serious pest on a number of national parks and on preserves of The Nature Conservancy in eleven northern states.

**HABITAT IN THE UNITED STATES**

Leafy spurge tolerates moist to dry soil conditions but is most aggressive under dry conditions where competition from native plants is reduced. It is capable of invading disturbed sites, including prairies, savannas, pastures, abandoned fields and roadside areas.

**BACKGROUND**

Leafy spurge was transported to the U.S. possibly as a seed impurity in the early 1800s. First recorded from Massachusetts in 1827, leafy spurge spread quickly and reached North Dakota within about 80 years.

**BIOLOGY & SPREAD**

Leafy spurge reproduces readily by seeds that have a high germination rate and may remain viable in the soil for at least seven years, enhancing its chances of recovery over time. Its seed capsules open explosively, dispersing seed up to 15 feet from the parent plant and may be carried further by water and wildlife. Leafy spurge also spreads vegetatively at a rate of several feet per year. The root system is complex, can reach 15 or more feet into the ground, and may have numerous buds.

**MANAGEMENT OPTIONS**

Because of its persistent nature and ability to regenerate from small pieces of root, leafy spurge is extremely difficult to eradicate.

### **Biological**

Biological control offers a highly promising management tactic for leafy spurge. The U.S. Department of Agriculture has shown success using six natural enemies of leafy spurge imported from Europe. These include a stem and root-boring beetle (*Oberea erythrocephala*), four root-mining flea beetles (*Aphthona* spp.) and a shoot-tip gall midge (*Spurgia esulae*). Large scale field-rearing and release programs are carried out cooperatively by federal and State officials in many northern states. The results are not as immediate as when herbicides are used but, if pesticide use is kept to a minimum, large numbers of these agents build up within a few years and have shown impressive results.

### **Chemical**

Several systemic herbicides have been found to be effective if applied in June, when the flowers and seeds are developing, or in early to mid-September, when the plants are moving nutrients downward into the roots. Preliminary research suggests that chemical treatment in the fall followed by a spring burn to reduce seed germination may be an effective strategy for reducing leafy spurge infestations. Multiple treatments are necessary every year for several years, making leafy spurge control an extremely expensive undertaking. If left uncontrolled for a single year, leafy spurge can reinfest rapidly.

### **Fire**

Prescribed burning, in conjunction with herbicides, may also be effective.



**USE PESTICIDES WISELY:** Always read the entire pesticide label carefully, follow all mixing and application instructions and wear all recommended personal protective gear and clothing. Contact your state department of agriculture for any additional pesticide use requirements, restrictions or recommendations.

**NOTICE:** mention of pesticide products on this page does not constitute endorsement of any material.

### **CONTACTS**

For more information on the management of leafy spurge, please contact:

- U.S. Geological Survey, Biological Resources Division, Colorado Plateau Field Station  
[http://www.usgs.nau.edu/swemp/Info\\_pages/plants/Euphorbia/euphorbiaesula.html](http://www.usgs.nau.edu/swemp/Info_pages/plants/Euphorbia/euphorbiaesula.html)

### **OTHER LINKS**

- <http://www.invasive.org/search/action.cfm?q=Euphorbia%20esula>
- <http://www.lib.uconn.edu/webapps/ipane/browsing.cfm?descriptionid=51>

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