Leafy Spurge
By Dr. Robert  Meade

If you have driven west from Bergen Park on Highway 65 during the last month or two, you probably have noticed the yellow hue on the meadows. West of Colorado 74, many of the open areas along both sides of CR-65 are heavily in grown with patches of leafy spurge, whose yellow flowers add an attractive splash of color to the hillsides.

Beauty, however, may be only in the eye of the passing viewer. Despite its lovely color, leafy spurge is among "The Dirty Dozen: America's Least Wanted" plants in the western United States. This knee-high import from Eurasia, which was first reported in eastern North America in 1827, has invaded western rangelands in recent decades, crowding out native grasses and other useful plants. On cultivated croplands, leafy spurge has been reported to reduce crop yields by 10 to 100 percent. Infestations are generally most severe, however, on undisturbed lands. Because cows do not eat it, leafy spurge has been especially troublesome to cattle ranchers, using up pasture and rangeland space that otherwise might have grown nutritious grasses. Some three million acres of western rangeland are affected.

Leafy spurge is difficult to control and virtually impracticable to eradicate. It is one of the first plants to begin growing in early springtime, which gives it a head start on the competition. It propagates prolifically by seed and root growth. By itself, it can expel seeds as far as 15 feet. Animals and birds spread the seeds even farther. But the main reason for its aggressive persistence across the West is its impressive root system. The roots bud vegetatively and spread both sideways and downwards. A massive network of small lateral roots fills the upper 12 inches of the soil while taproots penetrate to depths as great as 20 feet. Such a root system functions as an enormous reserve stock of vegetation that allows leafy spurge to recover quickly from most attempts at eradication or control.

In its native Europe, leafy spurge is not considered a problem weed because its growth there is controlled by a wide range of insects and diseases. Insect predators on leafy spurge include a midge, a longhorned beetle, a couple of moths, and a half dozen species of flea beetles. All these insects have been brought to America for experimental use, and so far the flea beetles are showing the most promise as long term solutions to our leafy spurge problems. Furthermore, the flea beetles will die where they have no spurge plants on which to feed, which means they pose no hidden threat as predators on native American plant species. If you happened to catch the article on "Benevolent Bugs" in the July 25 issue of Denver Rocky Mountain News, you saw a photo of a flea beetle and read of its use in controlling leafy spurge in Douglas County.

The other nonchemical control of leafy spurge that has been economically successful is grazing by goats and sheep. Goats especially like it. Sheep take to it well if they are allowed to graze on spurge patches early in Spring before much grass has emerged. Sheep and goats do not eradicate spurge, but they do keep it under control by repeated grazing.

Next time, I'd like to relate a success story from Montana involving a rancher friend of mine whose experience using flea beetles might give us some insights into controlling the leafy spurge that is on the increase in and around Evergreen.

SECOND INSTALLMENT

Difficult to control and virtually impracticable to exterminate, leafy spurge is one of several imported noxious weeds that has degraded rangelands across the US and Canada. The plant grows knee high or a little taller, and can be seen on open meadows or along roadways around Evergreen.

Chemical herbicides are expensive to apply to leafy spurge, and potentially hazardous to water supplies. Mechanical controls like mowing or even deep plowing are temporary at best because they do not seriously damage the plant's extensive and deeply growing root system. Sheep and goats will graze it down repeatedly, but cattle will not eat it. The most promising solution so far involves the use of flea beetles, natural predators of leafy spurge, imported, like the plant itself, from Europe.

Several flea beetles of the genus Aphthona have been used successfully to control leafy spurge around the country, including Colorado. The beetles are a few millimeters long, and come in colors that vary from black to copper depending on the species. The imported beetles feed only on leafy spurge, and will die rather than do damage to other plants. They attack the spuge plants both as adults and as larvae. The larval feeding stage is the more important because it destroys the vegetative reserves of the plant's extensive root system. But it takes years for the plants to show the effects of the beetles.

My friend Glenn Gay has successfully used several species of flea beetle to control leafy spurge in the Powder River country of southeastern Montana where his family has ranched cattle for three generations. Leafy spurge moved down the northward-flowing Powder River into Montana from Wyoming in the late 1960s. Although Glenn's family and other ranchers sprayed the weed with the expensive herbicide Tordon, the spurge continued to move downriver. Then in 1978, Powder River rose out of its banks in a 50-year flood that dislodged spurge roots and spread them, along with new deposits of sand and mud, across the floodplain. Glenn says that now the main spreading is by seed that the birds and deer carry back into the hills.

In 1990, Glenn tried releasing flea beetles into some of the spurge patches. He writes that he began by releasing about 250 beetles at each of 6 sites along Powder River. The beetles survived the winter at four of the six sites. The next year, he repopulated some of the old sites with new beetles, and started several new sites. The process was continued for 5 years, establishing new sites and repopulating old ones while the beetles became acclimated to the local climate. Surviving beetles mated with newly released beetles until, by 1996, one of the release sites had grown a large enough population that he was able to harvest the beetles himself and release them elsewhere on the ranch.

Glenn continues: "It usually takes several years after the beetles are released before there is any noticeable change in the spurge patch. In a couple of years there will be a depression where the beetles were released, the stems will be shorter and the plants will not flower as soon as the surrounding plants. The depression will get bigger and the number of spurge stems will decrease and the amount of grass will increase. Finally the patch will disappear as a patch but there will remain a few scattered spurge plants."

Clearly, persistence and patience are key ingredients in any such program. Jefferson County's new weed and pest management specialist, Alicia Doran, has expressed enthusiasm about continuing some of the flea beetle applications that were started by her predecessor. Interested county residents can call her at (303) 271-5989. Request forms for biological pest control agents from Colorado Department of Agriculture can be found on the Internet at www.ag.state.co.us/DPI/forms.

Dr. Joan Spalding is a member of the Commercial Arborists Association and an educational consultant.