BIOCONTROL OF LEAFY SPURGE

LEAFY SPURGE FLEA BEETLES

APHTHONA NIGRISCUTIS & A. LACERTOSA


a.


b.


c.


d.

LEAFY SPURGE (*EUPHORBIA ESULA*) PLANT GUIDE

Life Cycle	Root	Leaves	Stems	Flower	Seed/Fruit	Toxic
Perennial	Taproot and rhizomes brownish with pink buds	Alternate, narrow, 1 to 4 inches long; leaves contain a milky sap	Up to 3 feet tall; stems contain a milky sap	7 to 10 yellowish-green flowers in small clusters; the inconspicuous flower is surrounded by showy, heart-shaped yellow bracts	Oblong, grayish to purple, and borne in a three -celled fruit	Horses, cattle, humans

BIOCONTROL AGENT DESCRIPTION

- Black dot leafy spurge flea beetle (*Aphthona nigriscutis*) larvae are 1-6mm long and are white with a brown head capsule
- Brown-legged leafy spurge flea beetle (*A. lacertosa*) larvae are up to 5mm long, slender, and off-white with a brown head capsule
- Adult flea beetles are 3mm long
- Adult black dot leafy spurge flea beetle (image **c.**) is orangish-brown with a black dot near the wing lining, and the adult brown-legged leafy spurge flea beetle (image **d.**) is shiny black with reddish legs

BIOCONTROL AGENT IMPACT

- Larval feeding on the root hairs and on young roots causes damage to the root system, hindering nutrient uptake
- Adult beetles feeding on leaves can affect photosynthesis when high numbers of beetles are present

LIFE CYCLE	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
LEAFY SPURGE				Bolting		Flowering		Seeding				
LEAFY SPURGE FLEA BEETLE						Adults						
						Eggs						
				Larvae								
	Overwintering Larvae									Overwintering Larvae		
					Pupae							

Monitoring

- During mid to late summer, sweep net leafy spurge infestations for adult beetles
- Visually inspect leafy spurge infestations for an area of dead or dying spurge plants around the initial release site that indicates the presence of well-established flea beetle populations

How to Use

- Release 500+ adult beetles onto warm, dry infestations with a minimum size of 1 acre (infestations of 5 or more acres are preferable)
- Avoid areas where ants are found in large numbers
- Do not release in areas that flood regularly

Note

- There are five different species of leafy spurge flea beetles that are known to be effective biocontrols
- The two species most common in Montana are *A. nigriscutis* and *A. lacertosa* (see photos and illustrations)
- The three remaining species, *A. cyparissiae*, *A. flava*, and *A. czwalinai*, may also be found in Montana in smaller numbers
- Populations of both leafy spurge and flea beetles often follow a periodic high and low population cycle

In Montana

- This insect has shown to be very effective but can vary from site to site

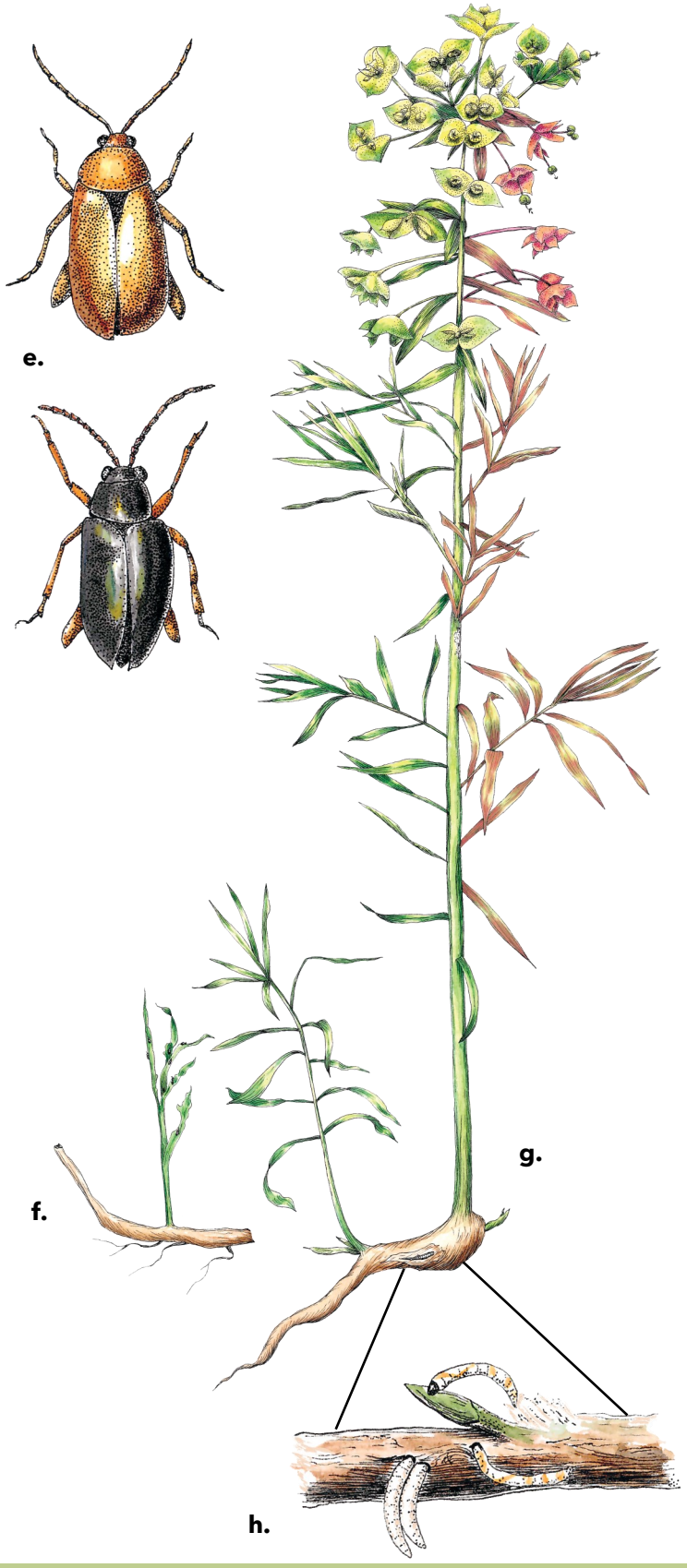

Image Key

a. Leafy spurge infestation (Montana Biocontrol Coordination Project)

b. Leafy spurge flowerhead close-up with flea beetles (Montana Biocontrol Coordination Project)

c. Adult black dot flea beetle (Mark Schwarzlander, University of Idaho, Bugwood.org)

d. Adult brown-legged leafy spurge flea beetle (USDA APHIS Plant Protection and Quarantine, USDA APHIS PPQ, Bugwood.org)

e. Adult black dot leafy spurge flea beetle (top) and adult brown legged leafy spurge flea beetle (bottom) (not to scale)

f. Bolting leafy spurge visible in spring

g. Flowering leafy spurge seasonal changes; bolting in spring and early summer (left), mature flowers in summer (center), seeding in fall (right)

h. Flea beetle larvae in taproot

Illustration Credit: **e**–**g.** Evelyn Neel, www.evelynneel.com

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