

Life History of *Galerucella californiensis* and *Galerucella pusilla*

Purple Loosestrife Biological Control Agents

Galerucella californiensis and *Galerucella pusilla* are two leaf-feeding beetles that belong to the insect family Chrysomelidae. They have similar life histories and are found in the same types of wetland habitats. Adult *Galerucella californiensis* beetles are 3 to 5 mm long and light brown in color, with a dense covering of fine hair. The elytra, or wing covers, may have dark stripes along the outer edges, and there is a black marking in the center of the pronotum (the region below the head). *G. pusilla* is similar in appearance to *G. californiensis* but is slightly smaller, 3 to 4 mm in length, and appears more flattened than the convex-shaped *G. californiensis*. *G. pusilla* adults lack the dark striping on the elytra, but instead may have the appearance of "shoulder pads".

Galerucella beetles overwinter as adults in the soil or leaf litter. They emerge in the spring in April and May to begin feeding on young leaves and buds of purple loosestrife (*Lythrum salicaria*). Mating occurs after a seven-day feeding period. Female *Galerucella* beetles deposit eggs during their oviposition period from May through July, with highest egg production occurring in June. The round, opaque eggs are laid in clusters of two to ten on purple loosestrife stems and leaves. Eggs are white or beige in color and are covered with a line of dark excrement. The eggs hatch in approximately one to two weeks.

Young beetle larvae feed on the upper parts of purple loosestrife, concentrating on leaf and flower buds. Older larvae feed on all plant parts. Mature larvae move off of the plant to pupate in plant debris or in soil beneath the host plant. The new generation adults that emerge in late summer feed on purple loosestrife for approximately one week and may go through a short oviposition period. Adults then move underground or in leaf litter to overwinter from September until the following spring.

There is usually one generation of beetles produced per year. It takes six weeks for a *Galerucella* beetle to develop from egg to adult. *Galerucella* feeding damage to purple loosestrife leaves and flower buds may occur during the entire growing season of the host plant. At high beetle populations, defoliation of purple loosestrife may occur.

