

Biological Control of Purple Loosestrife

Purple loosestrife, *Lythrum salicaria*, is an introduced European plant that has become established in wetlands throughout the northeast and Midwest in the United States, southeastern Canada, and in scattered locations in the west. Where established, purple loosestrife can outcompete native species and create a monoculture. A biological control program was initiated for this species in the late 1980s. Two European beetle species that feed on purple loosestrife, *Galerucella californiensis* and *G. pusilla*, have become established at many sites throughout North America, and have successfully reduced purple loosestrife stands at some but not all locations.

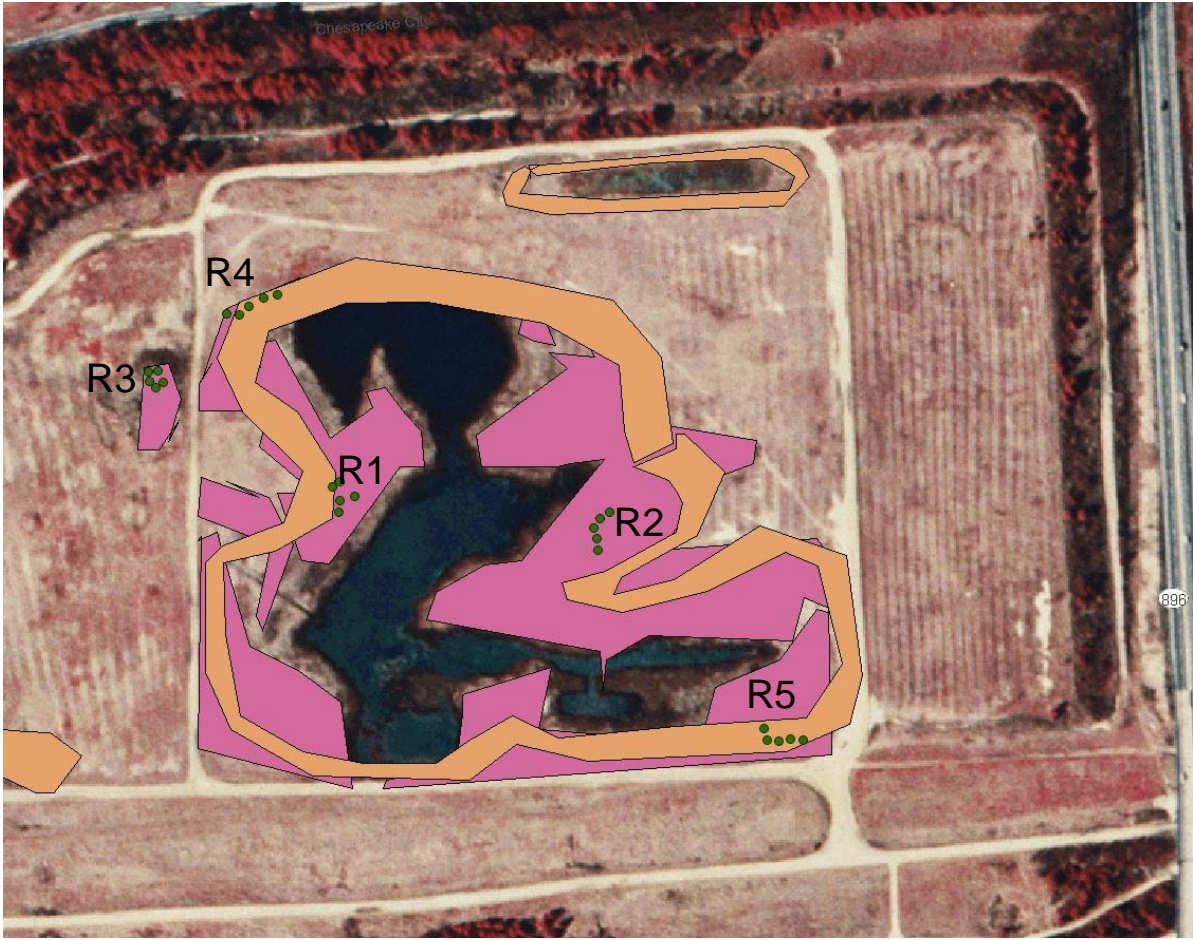
Research at the University of Delaware

In 2004, the Del Bay Retriever Club contacted the University of Delaware Department of Entomology and Wildlife Ecology concerning a severe infestation of purple loosestrife at Flat Pond, Bear, DE, near the Chesapeake and Delaware Canal. Flat Pond was formerly used for dog training and trials, but the development of an extensive purple loosestrife monoculture ringing the pond had rendered it virtually useless to the club.

Thanks to the [Delaware Water Resources Center](#) and a grant to the Del Bay club from the [National Fish & Wildlife Foundation](#), funding was obtained to allow release of approximately 3,000 mixed *Galerucella californiensis* and *G. pusilla* beetles in the summer of 2004. The beetles caused limited damage to the area where they were released, and successfully overwintered. In 2005, 50,000 *Galerucella californiensis* and *G. pusilla* beetles were released. Periodic monitoring of the release areas was conducted to determine the extent of damage and beetle spread during the summer. In addition, the purple loosestrife stand and damaged areas were mapped using GIS. The loosestrife stand had been delineated in July 2001 by DNREC (Delaware's Department of Natural Resources and Environmental Control), allowing us to compare the change in stand size between 2001 and 2005, and to establish a baseline map for future hoped-for stand reductions following establishment and growth of the *Galerucella* population.

The Figure (below) shows the extent of the purple loosestrife infestation in 2001 (orange) and in 2005 (pink), and the location of the five release sites.

Overall, the impact of the beetles released in 2004 and 2005, though measurable, was small compared to the extent of loosestrife still present at Flat Pond. However, typically where *Galerucella* develop very large populations that defoliate large patches of purple loosestrife, this does not occur for at least 3 years, and often not for 5 – 10 years or more. Monitoring of the beetles and purple loosestrife at Flat Pond should continue at least twice each year to follow the long-term fate of the community.



Chesapeake City

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