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Control of the Ornamental Purple Loosestrife (*Lythrum salicaria*) by Exotic Organisms

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ABSTRACT: *Lythrum salicaria* (purple loosestrife) was introduced from its native Europe onto the eastern shores of North America nearly 200 years ago (Stuckey 1980). Since then this wetland plant has spread to every state in the northern half of the U.S. and much of adjacent Canada. An aggressive invader, it has displaced native vegetation and destroyed waterfowl habitat by forming dense, nearly monotypic stands (Thompson et al. 1987). Host specificity tests were completed with three species of natural enemies from Europe (Blossey and Schroeder 1991; Kok et al. 1992; Kok et al., in preparation): the root-feeding weevil, *Hylobius transversovittatus* Gaeze (Fig. 1), and the two leaf-feeding beetles, *Galerucella californiensis* L. and *G. pusilla* Duft. Larvae of *H. transversovittatus* develop in the roots of *L. salicaria* and, with high numbers and/or several years of infestation, the plants are severely damaged (Fig. 2). Both species of *Galerucella* feed on the leaves and stems of *L. salicaria* and will completely defoliate plants. Like adult *H. transversovittatus*, adult *Galerucella* feed on above-ground parts of the plants, but the larvae cause the significant damage below ground. Approval was granted for the release of *H. transversovittatus* at a state wildlife area near Buffalo, New York, and at a federal wildlife area near Philadelphia, Pennsylvania. These locations will serve as nursery propagation sites to test overwintering capabilities of the agents, to evaluate various release methods, and to increase the numbers of insects for redistribution into new areas. In August 1991 a total of 516 adults and 15,208 eggs of *H. transversovittatus* from northern Germany were released at the two sites. Additional releases of *H. transversovittatus* and initial releases of *G. californiensis* and *G. pusilla* are being requested for August 1992. To date, biological control offers the most promising control tactic (Hight and Drea 1991) as well as the most inexpensive method of control (Drea 1991). The insects selected are highly specific to the target plant, with no negative impact on non-target plants. The goal of the project is to reduce the level of *L. salicaria* infestation by 70-80 percent while causing minimal or no impact to the native biota.

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FIGURE 1. (above left)—Adult *Hylobius transversovittatus* on a leaf of purple loosestrife in laboratory in Germany. (photo by Bland Blossey) FIGURE 2. (above right)—Mature larvae of *Galerucella calmariensis* on shoot tip of purple loosestrife and their feeding drainage in Germany, 1989. (photo by Bland Blossey)