

Inundative Release of *Aphthona* spp. Flea Beetles (Coleoptera: Chrysomelidae) as a Biological “Herbicide” on Leafy Spurge (*Euphorbia esula*) in Riparian Areas

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Abstract

Inundative releases of beneficial insects are frequently used to suppress pest insects, but not commonly attempted as a method of weed biological control because of the difficulty in obtaining the required large numbers of insects. The successful establishment of a flea beetle complex, mixed *Aphthona lacertosa* Rosenhauer and *A. nigriscutis* Foudras (87% and 13%, respectively), for the control of leafy spurge (*Euphorbia esula* L.) provided an easily collectable source of these natural enemies that enabled us to attempt inundative release as a possible leafy spurge control method in a sensitive riparian ecological zone where chemical control is restricted. Our target weed populations were small isolated patches of leafy spurge along three streams in southwestern, central and northeastern Idaho. This study assessed leafy spurge and associated vegetation responses to inundative releases of 10 and 50 beetles per spurge flowering stem over two consecutive years. Releasing 10 beetles per flowering stem had inconclusive effects on spurge biomass, crown, stem, and seedling density. Alternatively, releasing 50 beetles per flowering stem resulted in a reduction of biomass, crown and stem density in the range of 60 to 80% at all three study sites, and about a 60% reduction of seedling density at one site, compared to untreated plots. In contrast to leafy spurge, associated vegetation did not conclusively respond to beetle release, indicating that it may take more than two years for desired riparian vegetation to respond to reductions in leafy spurge competition. The paper related to this Abstract has been published on the following journal: Journal of Economic Entomology. 103: 242-248.