

Population Dynamics and Impacts of the Red-Headed Leafy Spurge Stem Borer on Leafy Spurge

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Abstract

We evaluated the efficacy of the biological control agent, red-headed leafy spurge stem borer (*Oberea erythrocephala* Schrank.) against the nonnative invasive plant leafy spurge (*Euphorbia esula* L.). Our three treatments were release of the biological control agent into uncaged plots, release of the biological control agent into plots caged to prevent agent escape and control plots caged to prevent agent entry. These treatments were replicated three times at six sites in the western U.S. We measured leafy spurge biomass for one or two years following release. We also measured the percentage of leafy spurge stems showing evidence of red-headed leafy spurge stem borer oviposition for either one or two years following agent release, depending on the site. Red-headed leafy spurge stem borer did not demonstrably reduce leafy spurge biomass in our study. Moreover, compared to the release year, evidence of red-headed leafy spurge stem borer oviposition declined with time, suggesting the agent population was diminishing. This suggests the agent is incapable of building large populations capable of controlling leafy spurge at the sites we studied. However, after being released, populations of biological control agents sometimes go through long lag phases and then begin rapid population increases, so we cannot completely dismiss the possibility that red-headed leafy spurge stem borer might become effective given more time. The paper related to this Abstract has been published on the following journal: *Invasive Plant Science and Management* 2011 4: 183-188