

Open Field Host Choice Test of *Diorhabda elongata* (Coleoptera: Chrysomelidae) in Northern California

Hillary Thomas
UC Davis
hqthomas@ucdavis.edu

USDA-ARS has proven successful in establishing an efficacious biological control agent against *Tamarix* spp. at multiple release sites across the Western United States. However, a well climatically matched population of the agent, *Diorhabda elongata* (Coleoptera: Chrysomelidae) has failed to establish at Northern California release sites. Past laboratory host range testing and observational field evidence suggest that *D. elongata* exhibits differential host preferences amongst several invasive species of *Tamarix* but the contribution of host choices to establishment failure has remained speculative. I conducted an open field host choice test in July, 2006 between the dominant invasive, *Tamarix ramosissima*, and the host species present at California release sites, *Tamarix parviflora*. Thirty marked adult beetles were released onto each of three treatments, (1) *T. parviflora* only (2) *T. ramosissima* only and (3) A mixed treatment with both host species conterminous. *D. elongata* showed marked ovipositional preference for *T. ramosissima* over *T. parviflora* ($F=6.57$, $df=2,10$, $p=.015$), with no significant difference between the mixed and *T. ramosissima* only treatment. Adult presence was also significantly higher on the mixed and *T. ramosissima* only treatments than on the *T. parviflora* only treatment (repeated measures MANOVA - $F=7.93$, $df=2,14$, $p=.005$). These results show that the presence of a preferred host plant can dramatically increase oviposition and adult presence over time, suggesting that differential host preferences could be contributing to establishment failure at Northern California release sites.