

The Exceptional Lantana Lace Bug, *Teleonemia scrupulosa*

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Abstract

The lantana lace bug, *Teleonemia scrupulosa* Stål (Hemiptera: Tingidae), was introduced to Hawaii for biological control of lantana, *Lantana camara* L. (Verbenaceae), in 1902 and again in 1954. Among 43 cases of non-target native plants used as hosts by weed biological control agents in the US and Caribbean in the past century, all appear predictable with the exception of this lace bug. In Hawaii, *T. scrupulosa* is known to develop on one variety of naio, *Myoporum sandwicense* (A. DC.) A. Gray (Myoporaceae), a very distant relative recently placed in the same order as lantana, Lamiales. Biological control efforts using *T. scrupulosa* proliferated around the world following its first use in Hawaii. A few additional instances of non-target host use by this lace bug suggest that its host range may be disjunct but broad within Lamiales, extending to sesame, *Sesamum orientale* L. (Pedaliaceae) and teak, *Tectona grandis* L. f. (Lamiaceae). The possibility of genetic shifts in host specificity among Hawaiian populations of *T. scrupulosa* was investigated in retrospective greenhouse tests. Ovipositional host specificity did not vary among populations, but was consistently disjunct, suggesting a genetic pre-adaptation for selecting a specific subspecies of *M. sandwicense* as a host. However, adaptation for development on *M. sandwicense* also appears to have occurred in the population collected from this plant. Additional studies are needed to determine the basis for host specificity in this insect and whether new protocols for host range evaluation may improve our powers to predict such non-target interactions.