SCIENTIFIC NOTE

Specificity of *Liothrips urichi* (Thysanoptera: Phlaeothripidae) for *Clidemia hirta* in American Samoa

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As it is in many Pacific islands, Koster's Curse (*Clidemia hirta* [L.] D. Don) (Melastomataceae) is an aggressive alien plant pest in American Samoa. Following the example of Fiji (Simmonds 1937, Rao 1971) and Hawaii (Waterhouse and Norris 1987, Reimer and Beardsley 1989), the thrips *Liothrips urichi* Karny was introduced to the Territory's main island of Tutuila in 1974 as a biocontrol agent (Tauili'ili and Vargo 1993).

To date, *L. urichi* has been successful in controlling *Clidemia* on Tutuila (Tauili'ili and Vargo 1993, Vargo, pers. comm. cited in Waterhouse and Norris 1987). Though *Clidemia* is still common and widespread throughout Tutuila, *L. urichi* inhibits its growth and vigor, preventing it from achieving ecological dominance. This situation contrasts with that found on the island of Tau, where *L. urichi* is absent. On Tau, within the National Park of American Samoa, are sites where *Clidemia* comprises approximately half the ground cover and grows in excess of 2 m high.

On Tutuila, *Clidemia* co-occurs with four native species of Melastomataceae. These are *Astronidium navigatorium* Christoph., *Astronidium pickeringii* (A. Gray) Christoph., *Melastoma denticulatum* Labill., and *Medinilla samoensis* (Hochreut.) Christoph. (Whistler 1994). In the National Park of American Samoa's Tutuila Unit, which occupies 1000 ha in north-central Tutuila, the latter three are widespread and fairly common components of the native forest ground cover and understory, often occurring in close proximity to *L. urichi*-infested *Clidemia*.

Liothrips urichi infestations are readily detected on *Clidemia* (Taylor 1928). Infested plants exhibit a characteristic browning of the terminal shoots and other leaves, and can be spotted from several meters' distance. The presence of *L. urichi* may then be confirmed by close visual examination. To determine if *L. urichi* was having any effect on the native relatives of *Clidemia*, I began examining native melastomes for any sign of infestation by *L. urichi*. Over the course of a six-month period, and at numerous sites throughout the park, I routinely scanned native melastomes, looking for the telltale browning. During this period, I spent approximately 107 hours in the field, hiking approximately 41.7 km along trails where *Clidemia* and the native melastomes are common. No native melastomes with browning of terminal shoots or leaves were observed. In addition, I closely examined approximately 300 plants of each of the three common native melastomes, as well as several *Astronidium navigatorium*, for *L. urichi*. While *L. urichi*-infested *Clidemia* was commonly observed in the course of these surveys, in no case was *L. urichi* observed on any of the native melastomes.

These observations indicate that in the native forest habitats of Tutuila, *L. urichi* infestations are limited to *Clidemia hirta*, its target species. This is consistent with experience elsewhere. In its native range, on the island of Trinidad, *L. urichi* is limited to *Clidemia*, in spite of the fact that there are 20 other species of melastome present (Taylor 1928). Tests to

infest over 20 species of crop plants with *L. urichi* were also unsuccessful (Cook 1929). This pattern apparently also pertains to locales where it has been introduced as a biocontrol agent. In both Fiji and Hawaii (where *Clidemia hirta* co-occurs with a number of other alien melastomes), *L. urichi* has only been found on *Clidemia* (K. Teramoto, pers. comm.). Thus, the observations reported here from Tutuila, American Samoa, add to the body of evidence demonstrating that *Liothrips urichi* is specific to *Clidemia hirta*, and may be safely used as a biological control agent.

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