Institute of Pacific Islands Forestry
USDA Forest Service PSW

Biocontrol of Invasive Melastomes

Our Forest Service team focuses on development of natural enemies for long term suppression of invasive plants in forests of the Hawaiian Islands and elsewhere across the Pacific. Among our targets are several members of the family Melastomataceae that are highly disruptive in Pacific ecosystems: *Miconia calvescens*, *Clidemia hirta*, *Tibouchina herbacea* and relatives. Current projects include investigations of promising new natural enemies of clidemia.

CLIDEMIA GALL WASP - *Allorhogas* sp. from Brazil

Female *Allorhogas* wasps lay eggs in flower buds, which subsequently develop into fruit that are enlarged and do not ripen normally, resulting in fewer viable seeds. Mature wasps emerge by chewing holes in galled fruits. Testing so far indicates that this wasp is narrowly specific to clidemia. We are evaluating whether *Allorhogas*, by altering normal seed formation, might have greater impact than another fruit-attacking clidemia biocontrol already in Hawaii - the moth *Mompha trithalama*.

CLIDEMIA NEMATODE - *Ditylenchus gallaeformans* from tropical America

Galls caused by this nematode can be common on certain *Clidemia* and *Miconia* species and relatives in wet habitats in Brazil and Costa Rica. It appears to be narrowly specific within the tribe Miconieae. Galls develop at growing shoot tips and flower buds, resulting in significant deformation. This damage has been implicated as an important source of mortality in small *Clidemia hirta* plants in understory habitats in Costa Rica. The nematodes appear to live and feed within the interstices of hairs and folded tissue that compose each gall. Our partners at Universidade Federal de Vicosa (Brazil) and Clemson University have been evaluating the genetics and specificity of *Ditylenchus gallaeformans.*