

Current biocontrol research in the Hawaii Department of Agriculture plant pathogen containment facility

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Whereas the use of insects as biocontrol agents is a well-established practice, the use of plant pathogens in classical biocontrol of forest weeds is a relatively new approach. The recent completion of a plant pathogen containment facility by the Hawaii Department of Agriculture has expanded the capacity for weed biocontrol research. Through cooperative efforts among both state and federal land managing and conservation agencies, including the National Biological Service, host-range testing for several fungi as potential biocontrol agents is currently underway in quarantine. A species of *Septoria*, a defoliator isolated from *Myrica cerifera* in North Carolina, tentatively referred to as *S. myricae*, is under investigation as a biocontrol agent for *Myrica faya*, an aggressive forest invader introduced to Hawaii from the Azores and Madeira. Host-range testing has included representatives of native as well as cultivated flora. Other leaf spots associated with *Septoria* sp. have been found on *Myrica* spp. in Venezuela and may be imported into quarantine for future testing. A species of *Cryphonectria* was found on dying *M. faya* in the Azores but has not yet proven virulent in quarantine. A rust fungus, *Uromyces pisi* f. sp. *europaei*, found on gorse (*Ulex europaeus*) in Britain, infected only one of 28 genera of the Fabaceae tested and shows promise for release. The rust *Gymnoconia nitens*, under consideration as a biocontrol agent for *Rubus argutus*, was found to attack, weakly, one of the two endemic Hawaiian species of *Rubus*. Research is continuing to gain further data on its host range.

Biology and host range of *Ecritotarsus catarinensis* (Heteroptera: Miridae), a new potential biological control agent for water hyacinth (*Eichhornia crassipes*) (Pontederiaceae) in South Africa

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A mirid, *Ecritotarsus catarinensis* Carvalho, was screened as a new potential biological control agent for water hyacinth, *Eichhornia crassipes* (Mart.) Solms., in South Africa. The eggs are inserted horizontally into the leaf tissue and four nymphal stages feed gregariously with adults on the undersurface of the leaves causing severe chlorosis at high population levels in the laboratory. The duration of the immature stages (egg and nymphs) was approximately 20 days while the adults survived for approximately 50 days. Favourable biological characteristics of *E. catarinensis* include a high rate of increase, long-lived and mobile adults, and several generations per year. Host-specificity of the mirid was determined by adult choice tests on 65 plant species in 37 families. Feeding and development was only recorded on two members of the Pontederiaceae, on water hyacinth (already a declared weed) and on pickerelweed (*Pontederia chordata*) a potentially invasive, alien aquatic plant in South Africa. The results suggest that *E. catarinensis* would add to the insect pressure on water hyacinth in South Africa.