

Introductions for Biological Control in Hawaii, 1987–1996

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Abstract. Introductions and liberations of natural enemies for the biological control of agricultural and forest pests in Hawaii are presented for the period 1987–1996. A total of 24 arthropod and 2 fungal species were released or re-released (augmentation) by the Hawaii Department of Agriculture for the control of 4 weeds (*Clidemia hirta*, *Coccinia grandis*, *Passiflora mollissima*, and *Ulex europaeus*) and 9 insect pests (*Bemisia argentifolii*, *Brontispa chalybeipennis*, *Elasmopalpus lignosellus*, *Frankliniella occidentalis*, *Heteropsylla cubana*, *Liriomyza* spp., *Nezara viridula*, *Plutella xylostella*, and *Sipha flava*).

Keywords: Biological control, Hawaii

In its role as the state's lead agency for classical biological control and foreign exploration for beneficial organisms, the Plant Pest Control Branch (PPC) of the Hawaii Department of Agriculture has maintained a program for the introduction and release of beneficial organisms for more than 90 years. This paper provides information on the status of some pests and their purposely introduced natural enemies and a list of beneficial organisms introduced and released for biological control from 1987 through 1996 (Table 1). All introductions are thoroughly studied and screened under quarantine following established protocols (Funasaki et al. 1988b, Lai & Funasaki 1990), and must be approved by the U.S. Department of Agriculture's Animal and Plant Health Inspection Service (USDA APHIS) and the state Board of Agriculture before they can be released in Hawaii.

p. 104

Brontispa chalybeipennis (Zacher) (Coleoptera: Chrysomelidae), blue coconut leaf beetle
Shortly after its detection on Oahu in October 1985, a biological control program was initiated for control of this foliage-feeding beetle. Both larvae and adults feed on and between the young terminal leaflets of coconut palms (*Cocos nucifera* L.), causing browning and fraying of the foliage (Lange 1950). Heavy infestations can result in reduction of yield and, occasionally, death of the tree. In 1986, an eulophid wasp, *Tetrastichus brontispae* (Ferriere), received from cooperators in Guam, was released against *B. chalybeipennis* (Funasaki et al. 1988a). First recovery was made in March 1987. By 1988, visible damage to coconuts in the areas of infestation in Honolulu had been reduced. Additional stocks of *T. brontispae* were received from Java in early 1991. First release of the Java strain was made in July 1991, and propagation of the Guam strain ceased the following month. Releases on Oahu continued through September 1992 (the beetle has not been found on any of the neighbor islands). The project was terminated in January 1993.