

# Surveillance of the Philippine Fruit Fly (*Bactrocera philippinensis*) and Mango Fruit Fly (*Bactrocera frauenfeldi*) on Saipan

Arnold Route and Claus Bier

## Abstract

Fruits are important agricultural crops in the Commonwealth of the Northern Mariana Islands (CNMI), and are produced in subsistence and commercial farming operations. Invasive Philippine Fruit Fly (*Bactrocera philippinensis*) and Mango Fruit Fly (*Bactrocera frauenfeldi*) are agriculture pests threatening fruit production in the Pacific region. Guam categorized them as threatening pests for the Mariana Islands. The CNMI has managed to set up monitoring stations at the ports of entry, at hotels and in agricultural areas on Saipan to survey for the Philippine Fruit Fly and Mango Fruit Fly using integrated Pest Management methods (IPM) to capture these pests. The strategy is to use effective attractant pheromone lures (methyl eugenol and cue-lure) in traps to capture the invasive flies upon arrival in the CNMI.

**Name:** Philippine Fruit Fly

**Common Scientific Name:** *Bactrocera philippinensis*/ *B. dorsalis* (identical species)

**Order:** Diptera

**Family:** Tephritidae

**Distribution:** Native to the Philippines and introduced to Palau. This species belongs to the Oriental Fruit Fly species complex, composed of fifty-two closely related species within tropical Asia. This species has been recorded in September 1996 in Palau - then identified as Philippine Fruit Fly (*Bactrocera philippinensis*) based on a trapped male fly. Host fruit surveys carried out in 2001 yielded fresh males and females that have helped to correctly identify the species as Oriental Fruit Fly (*B. dorsalis*).

**Description:** The adult, which is noticeably larger than house fly, has a body length of about 8.0 mm; the wing is about 7.3 mm in length and is mostly hyaline. The color of the fly varies, but there are prominent yellow and dark brown to black markings on the thorax. Generally, the abdomen has two horizontal black stripes and longitudinal medium stripes extending from the base of the third segment to the apex of the abdomen. These marking may form T-shaped pattern, but the pattern varies considerably. The ovipositor is very slender and sharply pointed.

**Host:** This pest attacks wide variety of fruit such as Guava, Mango, Banana, Papaya, Star fruit, and Tangerine.

**Common Name:** Mango Fruit Fly

**Scientific Name:** *Bactrocera frauenfeldi*

**Order:** Diptera

**Family:** Tephritidae

**Distribution:** This fly is widely spread throughout the Federated States of Micronesia (FSM), Republic of Palau, Republic of Nauru, Republic of Marshall Islands, Solomon Islands, Kiribati, Papua New Guinea and Australia.

**Description:** *Bactrocera frauenfeldi* can be identified by its entirely dark postpronotal lobes (Drew, 1989); the dark, triangle-shaped mark on the scutellum; and the short, tampered lateral vittae on the scutum.

**Host:** *Bactrocera frauenfeldi* infests a wide range of host that are of importance to subsistence and commercial agriculture are: avocados, kalack sapote, breadfruit, capsicum, carambola, cut nut, golden apple, grape fruit, guava, jackfruit, kumquat, mango, malay apple, paper mulberry, passion fruit, plantain, pomelo, sapodilla, snake gourd, sour orange, soursop, Tahitian chestnut, and tropical almond. Wild host are Indian laurel, figs, and many forest fruits.



## Surveillance:

Even though these pests are not in the CNMI yet, their detection on Saipan is necessary to possibly capture the Mango Fruit Fly and Philippine Fruit Fly before they get established in the islands and cause major damage to our agriculture. Surveillance, early detection and capture of these pests can lead to eradication before they become established.

MacPhail traps are used for the surveillance of the Mango Fruit Fly and Philippine Fruit Fly on Saipan. The bell basket, the central pheromone dispenser, contains a cottonball soaked with methyl eugenol and cue-lure as attractant for the flies. The red strip hanging inside the trap is impregnated with Dichlorvos (DDVP), killing the insect pests as they enter the traps.

These traps are distributed around entry points to the CNMI and neighboring farms. They are inspected regularly, and samples of the catch are taken.



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## Work Cited:

1. *Bactrocera philippinensis* SPC. (2002, October 17). Retrieved July 12, 2016, from [www.spc.int/Pacific/Species-profiles/B-philippinensis.htm](http://www.spc.int/Pacific/Species-profiles/B-philippinensis.htm)
2. *Bactrocera frauenfeldi* (mango fruit fly)-cabi (2015, January 20). Retrieved July 12, 2016 from [www.cabi.org/isc/datasheet/8712](http://www.cabi.org/isc/datasheet/8712).
3. Pictures courtesy of University of Hawaii.



Northern Marianas College  
Cooperative Research, Extension, and Education Service

P. O. Box 501250; Saipan, MP 96950

P: 234-3691; F: 234-0054

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