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Anastrepha fruit flies (Diptera; Tephritidae) in Costa Rica: four new records*

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1- *Anastrepha balloui* Stone, Diptera; Tephritidae. New geographic range: Costa Rica, Panama, Venezuela. Former range: Panama, Venezuela (Stone 1942, Fernandez-Yepez 1953, Foote 1967).

2- *Anastrepha canalis* Stone, Diptera; Tephritidae. New geographic range: Costa Rica, Panama, Venezuela. Former range: Panama, Venezuela. (Fernandez-Yepez 1953, Foote 1967).

3- *Anastrepha panamensis* Greene, Diptera; Tephritidae. New geographic range: Costa Rica, Panama. Former range: Panama. (Foote 1967, Norrbom 1985)

4- *Anastrepha irretita* Stone, Diptera; Tephritidae. New geographic range: Costa Rica, Panama. Former range: Panama. (Foote 1967, Norrbom 1985).

Here we report the results of sampling mango (*Mangifera indica* L.) orchards (May 1985-July 1986) for fruit flies in three localities (Cañas, prov. Guanacaste; Lepanto, prov. Puntarenas and Orotina, prov. Alajuela). In each locality 15 McPhail traps were sampled every other week (and the torula solution replaced). In Orotina (73 trees) we collected 3327 *Anastrepha* adults in the following dates: Feb. 4, 1986; April 15, 1986 and April 29, 1986. Of these, 1114 were identified as *A. obliqua* Mcquart, 2033 as *A. serpentina* (Wied.), 173 as *A. striata* Schiner, 2 as *A. canalis* Stone. The remaining 5 specimens (males) were determined as *A. balloui*, a previously unrecorded species for Costa Rica. Lepanto (Jan. 8, 1986-May 14, 1986, we collected from an orchard of 150 trees) produced 152 adults. Of those, 136 were *A. obliqua* and 16 (7 females and 9 males) *A. balloui*. Both localities within the tropical dry forest, which has two defined (dry and rainy) seasons. The flies were captured in the dry season. We were unable to rear adults of *A. balloui* from infested mangoes and obtained adults only from glass McPhail traps placed at the plantation borders.

Therefore, this species apparently is not associated with mango (there are records of some wild Sterculaceae as host plants, Fernández-Yepez 1953). Norrbom (1985) points out that the species is limited to the tropical dry forest. The sampling period suggests that the host plant fruits in the middle of the dry season in this locality.

In Orotina, we collected (Feb. 4, 1986) 102 adults identified as 40 *A. obliqua*, 27 *A. serpentina*, 30 *A. striata* and 3 *A. balloui*. The remaining two females were identified as *A. canalis*, previously non-recorded from Costa Rica and whose host plant is *Turpinia occidentalis* (Staphylaceae) (Norrbom 1985).

In Orotina (March 21, 1986) 751 adults were captured (184 *A. obliqua*, 491 *A. serpentina* and 74 *A. striata*). Of the two remaining specimens (one female and one male), the female was determined as *A. panamensis*. Both *Chrysophyllum cainito* L. and *C. panamense* are recorded as host plants for *A. panamensis*. We did 38 infested fruit cultures of *C. cainito* in the laboratory, but only *A. serpentina* and *Ceratitis capitata* (Wied.) emerged.

At "Centro Ecológico La Pacifica" in Cañas (200 trees) we collected (Jan. 21, 1986) 6 *A. striata*, 20 *A. obliqua*, one undetermined female (perhaps *A. irretita*, Norrbom, pers. com.) and parts.

This report increases the number of *Anastrepha* species known to occur in Costa Rica from 12 (Hedström *et al.* 1985) to 16.

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Julia Soto-Manitiu
Luis Fernando Jiron
Museo de Insectos, Facultad de Agronomía,
Universidad de Costa Rica, Costa Rica.

Anastrepha fruit flies in Costa Rica: three new records*

1- *Anastrepha parishi* Stone (Diptera; Tephritidae)
New range: Costa Rica, British Guiana.
Former range: British Guiana (Norrbom 1985)

2- *Anastrepha chiclayae* Greene (Diptera; Tephritidae)
New range: Texas (U.S.A.), Mexico, Costa Rica, Panama, Peru, Argentina.
Former range: Texas (U.S.A.), Mexico, Panama, Peru, Argentina (Stone 1942, Foote 1967, Norrbom 1985).

3- *Anastrepha hamata* Loew (Diptera; Tephritidae)
New range: Costa Rica, Panama, Brazil.
Former range: Panama, Brazil (Stone 1942, Foote 1967, Norrbom 1985).

*Sponsored by Noyes Foundation during sampling at Finca La Selva (OTS).

COMMENTS:

In "Estación Biológica La Selva" (Sarapiquí, Heredia prov.), McPhail traps with torula yeast placed in a *Psidium guajava* L. plantation, yielded about 800 *Anastrepha* adults from April Ist, 1985 to May 31m 1986 (*A. striata* Schiner, *A. obliqua Mcquart*, A. limae Stone, *A. distincta* Greene, *A. fraterculus* (Wied.), *A. manihoti* Costa Lima and *A. serpentina* (Wied.). Besides, two species unrecorded for Costa Rica were also found: *A. parishi* and *A. chiclayae* (*A. parishi* on 27-V-85, 8-VII-85, 29-IV-86 and 23-V-86, according to the literature, this fly is chiefly associated with Myrtaceae, Norrbom 1985).

The distribution of *A. chiclayae* in Costa Rica appears to be very wide, since we collected it in "La Selva" (5-XI-85 and 25-VII-86), the "Estación Experimental Fabio Baudrit (Alajuela prov.) and Buenos Aires (Puntarenas prov.); respectively in the northern, central and southern parts of the country. At the Estación F. Baudrit specimens were obtained from *Passiflora quadrangularis* L. fruits. This fly is chiefly associated with Passifloraceae, Myrtaceae and Anacardiaceae (Norrbom 1985).

We have only one specimen of *A. hamata*, collected by I. Chacón in Sarapiquí, Heredia prov. (15-I-83) and no biological information is available.

The only locality where the three occur is Puerto Viejo in the lower Atlantic slope. The zone is 35 m above the Río Sarapiquí (mean annuals: 24 °C and 166.6 mm precipitation). After these findings, the number of *Anastrepha* recorded from Costa Rica is increased from 16 (Soto-Manitiu & Jiron 1987) to 19 species.

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Ileana María Gónzalez
Humberto José Lezama
Luis Fernando Jirón
Museo de Insectos, Facultad de Agronomía, Universidad de Costa Rica, Costa Rica.