FIRST REPORT OF *ANASTREPHA COMPRESSA* IN MEXICO AND NEW RECORDS FOR OTHER *ANASTREPHA* SPECIES IN THE YUCATAN PENINSULA (DIPTERA: TEPHRITIDAE)

V. HERNÁNDEZ-ORTIZ[1], P. MANRIQUE-SAIDE[2], H. DELFÍN-GONZÁLEZ[2] AND L. NOVELO-RINCÓN[2]
[1]Instituto de Ecología, A.C. Departamento de Entomología. Km 2.5 antigua carretera a Coatepec, Apdo Postal 63, 91000, Xalapa, Veracruz, México

[2]UADY. Facultad de Medicina Veterinaria y Zootecnia. Departamento de Zoología, Apdo Postal 4-116 Itzimná. Mérida, Yucatán, México

Tephritid flies (Diptera: Tephritidae) are known as "true fruit flies" due to the close relationship between their immature stages and their wild and domesticated host plants. They are the most important dipteran pests of agriculture worldwide (Christenson & Foote 1960) and include 481 genera and 4352 species (Norrbom et al. 1998).

Anastrepha is the most economically important and diverse genus of fruit flies in the Americas, with 197 species distributed throughout tropical and subtropical areas (Norrbom et al. 2000). To date, 32 species are known to occur in Mexico, and seven of them have been reported for the Yucatan Peninsula (YP). This includes the Mexican states of Campeche, Quintana Roo and Yucatan. *Anastrepha* species reported for each state are: Campeche (*Anastrepha fraterculus, A. hamata, A. limae, A. obliqua, A. serpentina*); Quintana Roo (*A. hamata, A. ludens, A. obliqua, A. serpentina*); and Yucatan (*A. fraterculus, A. ludens, A. serpentina, A. striata*) (Hernández-Ortiz 1992).

This work provides new locality records for *Anastrepha* species already reported for YP, first records of three species in YP (*A. ampliata, A. pallens* and *A. spatulata),* and the first record of *A. compressa* for Mexico. Material examined is deposited at the Colección de Insectos, Instituto de Ecología A.C. Xalapa, Veracruz (IEXA), and Colección Entomológica Regional of the Universidad Autónoma de Yucatán (CER).

Anastrepha ampliata Hernández, 1990

This species has only been reported in the Mexican state of Chiapas, and Guatemala (Hernández-Ortiz 1990, 1992); new record for YP.

Material examined. MEXICO. CAMPECHE, Calkini, Concepción, 5-VIII-1997. Huchin (1 ♀ IEXA); QUINTANA ROO, Chunhuhub, McPhail-trap, 12-VIII-1997, Xool-Cetz (8 ♀ IEXA); YUCATAN, Dzilam Reserve, Rancho San Salvador, 30-IX-1992, light-trap, Delfín & Manrique (2 ♀ CER), *Ibid.* butterfly-trap (1 ♀ CER), *Ibid*. 30-XI-1992, net (2 ♀ CER).

Anastrepha compressa Stone, 1942

This species was described on the basis of material from several localities in Panama (La Campana, El Cermeño, and Balboa) (Stone 1942), and updated records include material from Venezuela (Norrbom et al. 1998). This is the first report from Mexico which extends its distribution to the north of Central America.

Material examined. MEXICO. CAMPECHE, Alfredo Bonfil, 20-I-1997, McPhail-trap (4 ♀, 1 ♂ IEXA).

Anastrepha fraterculus (Wiedemann, 1830)

Its known distribution includes the United States (Texas), South and Central America, and Trinidad (also introduced to Galapagos Is.) (Stone 1942; Norrbom et al. 1998). Records for Mexico include Aguascalientes, Campeche, Chiapas, Nuevo León, Oaxaca, Tamaulipas, Veracruz, Yucatan, and Zacatecas (Arana et al. 1992; Hernández-Ortiz 1992).Here we report the first record for Quintana Roo state.

Material examined: MEXICO. CAMPECHE, Tenabo, Tinún, 10-VII-1997, Herrera (1 ♂ IEXA); QUINTANA ROO, Felipe Carrillo Puerto, Chunhuhub, 5-12-VIII-1997, Xool (11 ♂, 128 ♀ IEXA); YUCATAN, Dzilam Reserve, Rancho San Salvador, 30-XI-1992, light-trap, Delfín & Manrique (1 ♂ CER); *Ibid.* 30-XI-1992, butterfly-trap (1 ♀ CER); Colonia Yucatan, Kalah Dzonot, 21-22-IX-1993, butterfly-trap, Delfín & Manrique (2 ♀ CER).

Anastrepha ludens (Loew, 1873)

This species ranges from southern USA (Texas) to Central America (Foote 1967). It has been reported for 25 Mexican states including Quintana Roo and Yucatan (Huerta et al. 1987; Arana et al. 1992; Hernández-Ortiz 1992). Here we report the first record for Campeche state.

Material examined. MEXICO. CAMPECHE, La Libertad, 26-VI-1993, net, Manrique (1 ♀ CER); QUINTANA ROO, Felipe Carrillo Puerto, Chunhuhub, 26-XII-1997, Xool (1 ♀, 1 ♂ IEXA).

Anastrepha obliqua (Macquart, 1843)

This species has a wide distribution in the New World, having been recorded from the USA (Florida, Texas) to South America and the Caribbean Islands (Stone 1942). In Mexico its range in-

cludes both coasts and other central states (18 states), including Campeche and Quintana Roo within YP (Hernández-Ortiz 1992).

Material examined. MEXICO. CAMPECHE, Palizada, Rancho Santa Isabel, 23-IX-1997, Cabrales (1 ♀ IEXA), Palizada, Rancho Alamilla, 7-X-1997, Cabrales (1 ♀ IEXA), Cd. del Carmen, Matamoros [no date], Dominguez (1 ♀ IEXA).

Anastrepha pallens Coquillett, 1904

This species has a known distribution in the Mexican states of Chiapas, Coahuila, Guerrero, Jalisco, Nayarit, Nuevo Leon, Oaxaca, Sinaloa, Sonora, Tamaulipas and Veracruz (Hernández-Ortiz 1992), with its northern limits in USA (Texas) and southern limits in El Salvador and Honduras (Norrbom 1998). Here we report a new record for YP. The reported hosts for this species are *Sideroxylon celastrinum* (Kunth) T. D. Pennington (as *Bumelia angustifolia*) and *S. lanuginosa* Michx. Baker et al. (1944) also reported as host *B. spiniflora* A.DC. in Mexico, probably a synonymy of *S. celastrinum* (see Norrbom 1998).

Material examined. MEXICO. YUCATAN, Ria Lagartos Reserve, El Cuyo, 8-II-1995, light-trap, Delfín & Manrique (1 ♀ CER).

Anastrepha serpentina (Wiedemann, 1830)

This species has a wide distribution in the New World, from USA (Texas) to South America and Trinidad (Foote 1967). In Mexico it occurs in 16 states along both coasts and in other central states, including the YP (Hernández-Ortiz 1992).

Material examined. MEXICO. QUINTANA ROO, Vallehermoso, 19-20-VII-93, butterfly-trap, Delfín & Manrique (1 ♀ CER); YUCATAN, Dzilam Reserve, Rancho San Salvador, 30-XI-1992, light-trap, Delfín & Manrique (3 ♀ CER); *Ibid*. butterfly-trap (1 ♀ CER).

Anastrepha spatulata Stone, 1942

This species has a known distribution in the Mexican states of Baja California Sur, Chiapas, Guerrero, Jalisco, Morelos, Nayarit, Oaxaca, Sinaloa, Sonora, Tamaulipas and Veracruz, with its northern limit in USA (Texas) and southern limit in Costa Rica and Panama (Foote 1967; Hernández-Ortiz 1992). Here we report it for the first time for YP.

Material examined. MEXICO. CAMPECHE, Hecelchacán, Blanca Flor, 20-III-1997, Dzul (1 ♂ IEXA).

Anastrepha striata Schiner, 1868

This species has a known distribution in the Mexican states of Aguascalientes, Colima, Chiapas, Guerrero, Jalisco, Mexico, Morelos, Nayarit, Oaxaca, Sinaloa, Veracruz and Yucatan, with its northern limit in USA (Texas) and a southern distribution in many countries in Central and South America (Stone 1942; Hernández-Ortiz & Aluja 1993) Here we report the first record for Quintana Roo state.

Material examined. MEXICO. QUINTANA ROO, Felipe Carrillo Puerto, Chunhuhub, 26-XII-1997, Xool (1 ♂, 1 ♀ IEXA), Felipe Carrillo Puerto, Emiliano Zapata, 15-X-1997, Xool (3 ♂, 2 ♀ IEXA).

At this time, a total of 11 *Anastrepha* species are known to be present in the states of the Yucatan Peninsula. The current status of our knowledge of these species and the most complete list of *Anastrepha* in those Mexican states is as follows: Campeche, 9 species; Quintana Roo, 7 species; Yucatan, 6 species.

The species *A. ludens, A. serpentina* and *A. obliqua* are economically important for fruit crops in Mexico. At the present time, there are no reports indicating that they represent an agricultural problem for YP states. However, the presence of species detrimental to national and regional agriculture, indicates the need for a permanent surveillance campaign to evaluate population and damage levels throughout the region.

Summary

We make an updated report for the *Anastrepha* species that occur in the Yucatan Peninsula. For the first time *A. compressa* Stone is recorded from Mexico, and the occurrence of three other species for this region is documented: *A. ampliata* Hernández, *A. pallens* Coquillett, and *A. spatulata* Stone. Information about localities and collection dates of voucher specimens are provided.

References Cited

Arana, P. J., P. T. Vera, and J. Cachon. 1992. La mosca mexicana de la fruta del sur del estado de Yucatán. Experiencias en desarrollo sostenible, 1-33.

Baker, A. C., W. E. Stone, C. C. Plummer, and M. McPhail. 1944. A review of the studies on the Mexican fruitfly and related Mexican species. U.S. Dept. Agric. Misc. Publ. 531: 1-155.

Christenson, L. D., and R. H. Foote. 1960. Biology of fruit flies. Annu. Rev. Ent. 5: 171-192.

Foote, R. H. 1967. Family Tephritidae (Trypetidae, Trupaneidae), Fascicle 57, pp. 1-91. *In* N. Papavero [ed.], A catalogue of the Diptera of the Americas South of the United States. Museo de Zoologia, Universidade de Sâo Paulo, Brazil.

Hernández-Ortiz, V. 1990. Lista preliminar de especies mexicanas del género *Anastrepha* (Diptera: Tephritidae) con descripción de nuevas especies, registros y sinonimias. Folia Entomol. Mexicana. 80: 227- 244.

Hernández-Ortiz, V. 1992. El género *Anastrepha* Schiner en México (Diptera: Tephritidae). Taxonomía, distribución y sus plantas huéspedes. Instituto de Ecología Publ. 33. Xalapa, Veracruz, Mexico. 162 pp.

Hernández-Ortiz, V., and M. Aluja. 1993. Listado de especies del género neotropical *Anastrepha* (Diptera:

Tephritidae), con notas sobre su distribución y plantas hospederas. Folia Entomol. Mexicana 88: 89-105.

HUERTA, P. R., N. S. RODRÍGUEZ, AND M. G. SILLER. 1987. Distribución geográfica de las moscas de la fruta del género *Anastrepha* Schiner en México, pp. 128-146. *In* INIFAP [ed.], Primer Informe sobre Moscas de la Fruta en Mango. INIFAP, Veracruz, México.

NORRBOM, A. L. 1998. A revision of the *Anastrepha daciformis* species group (Diptera: Tephritidae). Proc. Entomol. Soc. Washington 100: 160-192.

NORRBOM, A. L., L. E. CARROLL, F. C. THOMPSON, I. M. WHITE, AND A. FREIDBERG. 1998. Systematic databases of names, pp. 65-251. *In* F. C. Thompson [ed.], Fruit fly expert identification system and systematic information database. Backhuys Publ., Leiden, Netherlands.

NORRBOM, A. L., R. A. ZUCCHI, AND V. HERNÁNDEZ-ORTIZ. 2000. Phylogeny of the genera *Anastrepha* and *Toxotrypana* (Trypetinae: Toxotrypanini) based on morphology, pp. 299-342. *In* M. Aluja and A. L. Norrbom [eds.], Fruit flies (Tephritidae): phylogeny and evolution of behavior. CRC Press, USA.

STONE, A. 1942. The fruit flies of the genus *Anastrepha*. U.S. Dept. Agric. Misc. Publ. 439: 1-112.