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New distribution records of Asilidae (Insecta: Diptera) for Mexico

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Abstract. We provide new distribution records for 19 species of robber flies (Diptera: Asilidae) of Mexico based on the examination of 221 specimens from Mexican entomological collections.

Key words. Asiloidea, taxonomy, new records.

Introduction

Asilidae is one of the most diverse families within the insect order Diptera. Currently, a total of 7531 species in 555 genera have been described (Pape et al. 2011) in 14 subfamilies worldwide (Dikow 2009). According to the most recent catalogues, 1098 species and 105 genera have been recorded in the Nearctic region (Geller-Grimm and Artigas 2003/2004) and 1576 species in 217 genera in the Neotropical region (Papavero 2009). In Mexico, 463 species and 97 genera have been recorded (Geller-Grimm and Artigas 2003; Papavero 2009; Estrada 2015 a, b). Robber fly specimens housed at Mexican entomological collections have not been previously studied. Information on biology/behavior, biodiversity, and geographic distribution of the Mexican species is scarce. Herein, we provide new distribution records for 19 species in Mexico to increase our knowledge of these flies.

Materials and Methods

Specimens from the following collections were examined:

| | |
|---------|---|
| AECO | Alejandro Estrada Collection. Private collection of the senior author. |
| CEAM | Centro de Entomología y Acarología Montecillo, Colegio de Postgraduados. |
| CIFBUM | Colección de Insectos de la Facultad de Biología, Universidad Michoacana. |
| CNIN | Colección Nacional de Insectos, Instituto de Biología, Nacional Autonomous University of Mexico (UNAM). |
| EBCC | Estación Chamela Colección, Instituto de Biología, UNAM. |
| IEXA | Instituto de Ecología Xalapa, Veracruz. |
| MHNCDMX | Museo de Historia Natural de la Ciudad de México. |
| MZFC | Museo de Zoología Facultad de Ciencias, UNAM. |

Dates are recorded using roman numerals for months. State names are in bold letters and countries in capital letters. Brackets are used for complementary information not included on the original labels. Asterisks are used for new state records at the generic level. Photos were taken with a Nikon D200 camera with a macro Nikkor 60 mm lens attached and the photos were subsequently enhanced with the program GIMP 2.10.12.

A total of 221 specimens were identified using information from the following publications: Bellardi (1861), Osten Sacken (1887), Williston (1901), Martin (1961, 1963), Cole and Pritchard (1964), Wilcox (1966), Lamas (1973), Papavero (1975), Artigas and Angulo (1980), Fisher (2009), Scarbrough et al. (2012). The senior author has been assisted by some experts who have provided literature, identified specimens or confirmed his identifications. These include Eric Fisher, Fritz Geller-Grimm and Aubrey Scarbrough.

Results

Four of the 19 species treated in this paper represent new distribution records, since the original description of the taxa. In addition, 11 of the 15 genera are new to the fauna of at least one Mexican state. We also report new distribution data for 20 of the 32 states of the country. The best represented states in this study were: Jalisco, with four generic and eight specific new records; Morelos, three generic and five specific new records, and Michoacán, three generic and four specific new records.

Carreraomyia acapulquensis (Cole and Pritchard, 1964) (Figure 1)

Genus distribution in Mexico. Guerrero and Morelos (Cole and Pritchard 1964).

Species distribution in Mexico. Guerrero (Cole and Pritchard 1964).

New records. Jalisco* (Chamela) and Michoacán* (Río Ostula).

Material examined. MEXICO: **Jalisco**, Chamela [Tropical Deciduous Forest] [19°30' N, 105°00' W], 10/vii/1989, G. Rodríguez (2♂, 2♀ EBCC); same data, except: 6–7/vii/1993, R. Warton, Malaise trap (1♂ EBCC); same data, except: 100 m, 6/vii/1995, R.L. Westcott (1♂ EBCC); same data, except: 2/vii/1995, R.L. Westcott (1♂ EBCC). **Michoacán**, 60 km S Tecomán, Río Ostula [Tropical Deciduous Forest], 15/vii/1989, G. Rodríguez (1♂ EBCC). **Michoacán**, Uruapan-Nueva Italia, Fuente El Marqués [Tropical Deciduous Forest], 13/vii/1983, A. Ibarra (1♂ CNIN).

Remarks. These specimens represent the first records for the genus since its description in 1964. *C. acapulquensis* follows the pattern of the Tropical Deciduous Forest of the Mexican Pacific Slope, from Jalisco to Guerrero.

Cophura humilis (Bellardi, 1861) (Figure 2)

Genus distribution in Mexico. Baja California, Coahuila, Guerrero, Jalisco, Morelos, Nayarit, Nuevo León, Puebla, Sinaloa and Sonora (Papavero 2009).

Species distribution in Mexico. Guerrero, Jalisco and Morelos (Papavero 2009).

New records. Colima* and Nayarit*.

Material examined. MEXICO: **Colima**, viii/1916 (1♀ CNIN). **Nayarit**, 10.2 km NE Bucerías, 11/vii/1991, F.A. Noguera & A. Rodríguez (1♂, 1 (genitalia absent) EBCC).

Diogmites cuantlensis (Bellardi, 1861) (Figure 3)

Genus distribution in Mexico. Chiapas, Chihuahua, Coahuila, Guerrero, Jalisco, Mexico City, Morelos, Nuevo León, Oaxaca, Puebla, Sonora, Veracruz and Yucatán (Papavero 2009).

Species distribution in Mexico. Chiapas, Guerrero, Jalisco, Morelos, Nuevo León, Oaxaca, Puebla, Veracruz and Yucatán (Papavero 2009).

New records. Michoacán* (La Cañada, Morelia and Uruapan).

Material examined. MEXICO: **Michoacán**, Morelia, 10/vii/1990, O. Cruz (1♀ CIFBUM). **Michoacán**, Uruapan, 4/vi/1987, Y.B. (1♂ CIFBUM). **Michoacán**, La Cañada, 20/vi/1987, Y.B. (1♂ CIFBUM).

Remarks. Although there are published descriptions and keys to species as Carrera (1953), Martin (1963), and Artigas (1966), the genus is in need of revision.

Eccritosia zamon (Townsend, 1895) (Figure 4)

Genus distribution in Mexico. Baja California, Chihuahua, Guerrero, Jalisco, and Oaxaca (Papavero 2009), Colima (Lavigne 1977).

Species distribution in Mexico. Baja California, Chihuahua, Guerrero, Jalisco and Oaxaca (Papavero 2009), Colima (Lavigne 1977).

New records. Morelos* (Alpuyeca) and Nayarit*.

Material examined. MEXICO: **Morelos**, Alpuyeca, 2/x/1983, A. Ibarra (1♂ CNIN). **Nayarit**, 9 km E Tuxpan Microondas La Peña [Tropical Deciduous Forest], 21°56'06" N, 105°13'23" W, 140 m, 17/vii/1995, F.A. Noguera and A. Rodríguez (2♂ EBCC); same data, except: R. Ayala (1♂ EBCC).

Remarks. Two species of *Eccritosia* have been recorded in Mexico, *E. zamon* ranges from southern U.S.A. to Costa Rica, and *E. barbata* (Fabricius) is distributed from the southeastern U.S.A. to Argentina (Papavero 2009). A revision of the genus was made by Lamas (1973).

Efferia bicolor (Bellardi, 1861) (Figure 5)

Genus distribution in Mexico. Widespread (Papavero 2009).

Species distribution in Mexico. Michoacán and Mexico City (Papavero 2009).

New records. Guerrero, Jalisco (Chamela), and Sonora.

Material examined. MEXICO: **Guerrero**, 4 km E Mezcala, 26/vi/1971, E. Martin (1♂, 1♀ MHNCDMX). **Jalisco**, Estación Chamela [Tropical Deciduous Forest] [19°30' N, 105°00' W], 25/vi/1986, M. Sanchez, Malaise trap (2♀ EBCC); same data, except: 24/vii/1986, R. Usela (1♀ EBCC); same data, except: 14/vi/1989, E. Ramírez (1♀ EBCC); same data, except: 24/viii/1986, M. Sánchez (1♀ EBCC); same data, except: 17/vii/1989, E. Ramirez (1♀ EBCC); same data, except: 3/vi/1995, B. Rodríguez (1♀ EBCC); same data, except: 28/viii/1986, M. Sánchez (1♀ EBCC); same data, except: 30/v/1990, E. Ramírez (1♂ EBCC); same data, except: 8/vii/1998, M.A. Morales (1♂ EBCC); same data, except: 7/vii/1991, A. Rodríguez (1♀ EBCC). **Sonora**, 1 km E Bahía Kino, 28°49.535' N, 111°55.210' W, 23/vii/1995, R. Ayala (1♂ EBCC).

Efferia triton (Osten Sacken, 1887) (Figure 6)

Genus distribution in Mexico. Widespread (Papavero 2009).

Species distribution in Mexico. Nayarit and Sinaloa (Papavero 2009), Chihuahua (Lavigne and Dennis 1985).

New records. Jalisco, Morelos, Oaxaca, Sonora, and Yucatán.

Material examined. MEXICO: **Chihuahua**, 75 km N Rancho Exptl. La Campana, 1600 m, 30/viii/1981, G. Forbes (1♂ EBCC); same data, except: 1/vi/1981 (1♀ EBCC). **Jalisco**, Estación Chamela [Tropical Deciduous Forest] [19°30' N, 105°00' W], 16/vii/1988, E. Ramírez (1♂, 1♀ EBCC). **Jalisco**, San Buenaventura, [Tropical Deciduous Forest], 19°46.61' N, 104°03.32' W, 620 m, 6/iii/1997, E. Ramírez (1♀ EBCC); same data, except: 4/vi/1997 (2♂, 1♀ EBCC); same data, except: 5/vi/1997 (3♂ EBCC); same data except: 6/vi/1997 (2♀ EBCC). **Jalisco**, Tomatlán, 4 km S Macuautitlán, 19°56'02" N, 104°59'16" W, 260 m, 28/vi/1995, E. Ramírez (1♂ EBCC). **Jalisco**, Tomatlán, 2 km S Macuautitlán, 19°56'83" N, 104°59'22" W, 260 m, 28/vi/1995, E. Ramírez (1♀ EBCC). **Jalisco**, 13 km N Autlán de Navarro, 1010 m, 29/vi/1995, E. Ramírez (1♂ EBCC). **Morelos**, Cañón de Lobos [Tropical Deciduous Forest], 13/vii/1985, M. Rodríguez (1♂ CNIN). **Morelos**, 2.5 km N, 4 km W Huautla Estación CEAMISH [Tropical Deciduous Forest], 18°27.671' N 99°02.475' W, 940 m, 11/iv/1996, E. Ramírez (2♂ EBCC); same data except: 12/v/1996, 13/v/1996, and 9/vi/1996 (3♀ EBCC); same data, except: F.A. Noguera, A. Rodríguez, E. González, E. Ramírez, B. Rodríguez, M.A. Morales, S. Zaragoza y M.E. Guardado, Malaise trap #3 (1♂ EBCC); same data, except: F.A. Noguera, E. Ramírez, B. Rodríguez, M.A. Morales, S. Zaragoza, M.E. Guardado, A. Pérez y C.A. Uribe, Malaise trap #6 (1♀ EBCC). **Morelos**, 2.5 km W Ajuchitlán [Tropical Deciduous Forest], 18°28.065' N, 98°59.546' W, 950 m, 12/vi/1996, E. Ramirez (1♂, 1♀ EBCC). **Oaxaca**, Domingullo 19 km SSE de Cuicatlán [Tropical Deciduous Forest], 17°38.907' N, 96°54.703' W, 760 m, 24/v/1998, M.A. Morales (1♂, 1♀ EBCC); same data, except: 23/iii/1998, E. Ramírez (1♂ EBCC). **Oaxaca**, 30 km SSE de Cuicatlán [Tropical Deciduous Forest], 17°36.489' N, 96°55.996' W, 1220 m, A.M.

Corona (1♂ EBCC). **Sonora**, 9 km NW Alamos y 3 km N Cam. La Luna [Tropical Deciduous Forest], 27°05'68" N, 109°01'37" W, 450 m, 27/vii/1995, A. Rodríguez (1♂ EBCC). **Sonora**, 5 km S Alamos [Tropical Deciduous Forest], 27°00'71" N, 108°55'55" W, 390 m, 21/vii/1995, R. Ayala (1♂ EBCC). **Sonora**, 28.5 km SE Tecoripa Cerro Verde [Tropical Deciduous Forest], 28°33'09.5" N, 109°43'34" W, 532 m, 16/viii/2004, E. Ramírez (1♂ EBCC). **Sonora**, 29 km SE Tecoripa y 6 km S Rancho Las Peñitas [Tropical Deciduous Forest], 28°32'21.7" N 109°41'31.5" W, 694 m, 21/vii/2004, E. Ramirez (1♂ EBCC). **Sonora**, 37 km SE Tecoripa La Barranca, 28°34'25.6" N, 109°39'54.7" W, 523 m, 19/vii/2004. E. Ramírez (1♀ EBCC). **Yucatán**, 10 km N Mérida, 27/v/1996, F.A. Noguera (1♀ EBCC).

Lampria aurifex Osten Sacken, 1887 (Figure 7)

Genus distribution in Mexico. Nayarit, San Luis Potosí, Tabasco and Veracruz (Papavero 2009).

Species distribution in Mexico. Nayarit, San Luis Potosí, Tabasco and Veracruz (Papavero 2009).

New records. Jalisco*, Oaxaca*, Querétaro*, and Quintana Roo*.

Material examined. MEXICO: **Jalisco**, San Buenaventura, [Tropical Deciduous Forest], 19°47'.61" N, 104°03'.32" W, 720 m, 2/vii/1997, M.E. Guardado (1♂ EBCC); Carr. Barra de Navidad-Pto. Vallarta km 61 La Virgencita [Tropical Deciduous Forest], 21/x/1985. R. Usela (1♀ EBCC); Carr. a La Huerta [Tropical Deciduous Forest], 24/ix/1986, R. Usela (1♂ EBCC); Estación Chamela [Tropical Deciduous Forest] [19°30' N, 105°00' W], 20/vii/1989, E. Ramírez (1♂ EBCC); same data, except: 27/viii/1990, C. Mayorga, A. Cadena y J. Martínez (1♂ CNIN); same data, except: 20/vii/1993, R.L. Westcott (1♀ EBCC); same data, except: 2/x/1993, P. Manrique (1♂ EBCC); same data, except: 26/vii/1994, R.L. Westcott (1♂ EBCC); same data, except: 27/ix/2002, R.L. Westcott. **Oaxaca**, San Miguel Soyaltepec, presa Miguel Alemán, Isla El Bolso [Tropical Deciduous Forest], 18°17'3.32" N, 96°31'51.67" W, 141 m, 20/viii/2015, F. Muñoz (1♀ AECO); 5.5 km SW ent. Carr. Salina Cruz-Santa Cruz Huatulco y 2 km S Estación El Sabanal, 15°46'10.4 N, 96°11'40.6 W, 103 m, 5/ix/1995, F.A. Noguera (1♀ EBCC). Carretera Tuxtepec-Oaxaca km 5, 28/viii/1984, V. Hernández (1♂ CNIN). **Querétaro**, km 8 Neblinas Agua Zarca, 21°15'14" N, 99°4'58" W, 22/vii/1998, C. Mayorga y E. Barrera (1♂, 1♀ CNIN). **Quintana Roo**, Boca Paila, 21/vi/1984, M.E. Pisana (1♂ CNIN).

Lampria circumdata (Bellardi, 1861) (Figure 8)

Distribution of the species in Mexico. Unknown (Papavero 2009).

New records. Morelos, Quintana Roo, and Veracruz.

Material examined. MEXICO: **Morelos**, 4 km W Ajuchitlán [Tropical Deciduous Forest], 18°27.632' N 99°00.125' W, 940 m, 19/xi/1995. A. Rodríguez (1♂ EBCC). **Quintana Roo**, Carretera Chetumal-Pto. Juárez km 146, 17/iii/1982, M. García (1♂ CNIN). **Veracruz**, [Catemaco], Estación Los Tuxtles, [18°34' N 95°04' W], 17-18/iv/1986, A. Ibarra, E. Ramírez y P. Blanca (1♂ CNIN); same data, except: 140 m, 23/iv/1985, P. Sinaca (1♂ EBTLT); El Vigía trail, 18/iv/1986, E. Ramírez (1♂ EBTLT); same data, except: 480 m, 21/iv/1986, E. Ramírez (1♂ EBTLT); same data, except: 160 m, 13/iv/1986, P. Sinaca (1♂ EBTLT).

Lissoteles vanduzeei Cole, 1923 (Figure 9)

Genus distribution in Mexico. Baja California (Cole 1923; Martin 1961), Guerrero, Jalisco and Nayarit (Papavero 2009).

Species distribution in Mexico. Baja California (Cole 1923, Martin 1961).

New records. Baja California Sur*.

Material examined. MEXICO: **Baja California Sur**, 2.9 km N de Migriño, 20/vii/1977, R.L. Westcott (1♂, 2♀ CNIN).

***Mallophora faultrix* Osten Sacken, 1887 (Figure 10)**

Genus distribution in Mexico. Chihuahua, Colima, Guanajuato, Guerrero, Hidalgo, Jalisco, Mexico City, Morelos, Nayarit, Nuevo León, Oaxaca, Puebla, Sinaloa, Sonora, Tabasco, Tamaulipas, Veracruz, and Yucatán (Papavero 2009).

Species distribution in Mexico. Chihuahua, Morelos, Nayarit, Puebla, Sinaloa, and Veracruz (Papavero 2009).

New records. **Coahuila** (Matamoros), **Durango** (Cañón Fernández), **Jalisco** (San Buenaventura; Los Ángeles Locos; Talpa, 12 km S from El Tuito and 22 km E from El Tuito), **Oaxaca** (Dominguillo 19 km SSE from Cuicatlán) and **San Luis Potosí** (Real de Catorce and Temazunchale).

Material examined. MEXICO: **Coahuila**, Matamoros, 10/vi/1985, D. Miramontes (1♀ MHNCD-MX); same data, except: 12/vi/1985, (1♂ MHNCDMX). **Durango**, Cañón Fernández, [25°19'2.71" N 103°45'07.62" W], 13/viii/1978, F.R. Orrante (1♀ CNIN). **Jalisco**, San Buenaventura [Tropical Deciduous Forest], 19°46'.61 N 104°03'32 W, 620 m, 8/ii/1997, A. Soria (1♀ EBCC); same data, except: 4/v/1997, L.F. Novelo (1♂ EBCC); same data, except: 5/vi/1997, E. Ramírez (4♂, 2♀ EBCC); same data, except: 6/vi/1997, E. Ramírez (6♂ EBCC); same data, except: M.E. Guardado (4♀ EBCC); same data, except: 7/vi/1997, V.H. Toledo (1♂ EBCC); same data, except: 8/vi/1997, E. Ramírez (9♂ EBCC); same data, except: L.F. Novelo (5♀ EBCC); same data, except: 720 m, 2/vii/1997, M.E. Guardado (2♂, 1♀ EBCC); same data, except: 4/vii/1997, M.E. Guardado (1♂ EBCC); same data, except: 5/vii/1997, F.A. Noguera (1♀ EBCC); same data, except: 3/ix/1997, E. Ramírez (2♂ EBCC); same data, except: 2/x/1997, M.A. Morales (1♂ EBCC); same data, except: 3/x/1997, E. Ramírez (10♂ EBCC); same data, except: 19°47'.42 N 104°01'.88 W, 900 m, 3/iv/1997, A. Rodríguez (1♂ EBCC); 12 km S El Tuito, 6/xi/1987, R. Ayala (1♂ EBCC); Los Ángeles Locos, Tenacatita, 14/vi/1994, G. Nogueira (1♂ EBCC); Talpa, 18/vii/1989, R. Ayala (1♀ EBCC); 22 km E El Grullo, 1200 m, 17/vii/1989, C. Everaert (1♀ EBCC). **Oaxaca**, Dominguillo 19 km SSE from Cuicatlán [Tropical Deciduous Forest], 17°38.907' N 96°54.703' W, 760 m, 24/iv/1998, E. Ramírez (3♀ EBCC); same data, except: 19/vi/1998, E. González (2♂ EBCC); same data, except: 24/xi/1997, S. Zaragoza (1♀ EBCC); same data, except: 25/xi/1997, E. González (1♀ EBCC); same data, except: 26/xi/1997, F.A. Noguera (1♀ EBCC); same data, except: 27/xi/1997, M.A. Morales (1♂ EBCC); same data, except: 23/iii/1998, E. Ramírez (1♂ EBCC); same data, except: 25/iii/1998, A. Rodríguez (1♂ EBCC); same data, except: 22/iv/1998, E. Ramírez (1♂ EBCC); same data, except: 24/iv/1998, V.H. Toledo (1♂ EBCC); same data, except: 21/v/1998, M.A. Morales (1♂ EBCC); same data, except: 23/vi/1998, M.E. Guardado (1♂ EBCC); same data, except: 24/v/1998, V.H. Toledo (1♀ EBCC); San Pedrito Chicozapote, 4 km SSE de Cuicatlán [Tropical Deciduous Forest], 17°46.331' N 96°56.671' W, 670 m, 21/v/1998, E. González (1♀ EBCC). **San Luis Potosí**, Real de Catorce, San Antonio de la Cruz, 1-5/xi/1998, A. Guzik (1♂ MHNCDMX); Temazunchale, 27/iv/1976, J. Butze y E. Barrera (1♂ CNIN).

***Mallophora leschenaulti* Macquart, 1838 (Figure 11)**

Species distribution in Mexico. Chihuahua, Colima, Guanajuato, Guerrero, Jalisco, Morelos, Nuevo León, Oaxaca, Tamaulipas and Veracruz (Papavero 2009).

New records. Hidalgo and Nayarit.

Material examined. MEXICO: **Hidalgo**, Santiago de Anaya, 20°23'07" N, 98°57'06" W, 2030 m, 19/vii/1999, A.M. Corona (1♂ EBCC). **Nayarit**, Jumatán, 350 m, 22/xi/1980 (1♀ MZFC).

***Ospriocerus tequilae* Martin, 1968 (Figure 12)**

Genus distribution in Mexico. Baja California, Campeche, Chihuahua, Coahuila, Guerrero, Durango, Jalisco, Morelos, Nayarit, Nuevo León, Oaxaca, San Luis Potosí, Sinaloa, Sonora, Tamaulipas (Papavero 2009).

Species distribution in Mexico. Campeche, Jalisco, Nayarit, Oaxaca, and Sinaloa (Papavero 2009).

New records. Chiapas*, Michoacán*, and Sonora.

Material examined. MEXICO: **Chiapas**, 25 km SE Pujilic, 520 m, 21/iv/1993, A. Rodríguez (1♀ EBCC). **Michoacán**, Lázaro Cárdenas, Chuta, 12/vi/1979, J. Acosta (1♀ CIFBUM). **Sonora**, 29.4 km SE Tecoripa Rancho Las Peñitas [Tropical Deciduous Forest], 28°33'21.6" N, 109°42'18.3" W, 588 m, 19/viii/2004, L. Salas (1♂ EBCC).

***Polacantha (Echinotropis) xanthocera* (Williston, 1901) (Figure 13)**

Genus distribution in Mexico. Baja California, Chiapas, Chihuahua, Coahuila, Durango, Guerrero, Hidalgo, San Luis Potosí and Tamaulipas (Papavero 2009).

Species distribution in Mexico. Guerrero (Williston 1901).

New records. Jalisco* and Morelos*.

Material examined. MEXICO: **Jalisco**, Estación Chamela [Tropical Deciduous Forest] [19°30' N, 105°00' W], 2/x/1989, E. Ramírez (1♂, 1♀ EBCC); same data, except: 12/viii/1985, M. Sánchez (1♀ EBCC); same data, except: 2/x/1993, P. Manrique (1♂, 1♀ EBCC); same data, except: 1/x/1993 (1♀ EBCC). **Morelos**, 4 km W Ajuchitlán [Tropical Deciduous Forest], 18°27.632' N, 99°00.125' W, 940 m, 19/xi/1995, E. Ramírez (1♀ EBCC).

Remarks. These specimens represent the first records for the species since its description by Williston (1901).

***Prolepsis tristis* (Walker, 1854) (Figure 14)**

Genus distribution in Mexico. Colima, Guerrero, Jalisco, Michoacán, Morelos, Nayarit, Sinaloa and Sonora (Papavero 2009).

Species distribution in Mexico. Colima, Guerrero, Jalisco, Michoacán, Morelos, and Nayarit (Papavero 2009).

New records. Oaxaca* (Dominguillo), Puebla*, and Tabasco* (Huimalquillo).

Material examined. MEXICO: **Oaxaca**, Dominguillo 19 km SSE de Cuicatlán [Tropical Deciduous Forest], 17°38.907' N, 96°54.703' W, 760 m, 20/ix/1998, E. Ramírez (1♂ EBCC); same data, except: 23/vi/1998, E. González (1♀ EBCC); San Pedrito Chicozapotle 4 km SSE de Cuicatlán [Tropical Deciduous Forest], 17°46.331' N, 96°56.671' W, 670 m, 16/x/1998, E. González (1♀ EBCC); 30 km SSE de Cuicatlán [Tropical Deciduous Forest], 17°36.489' N, 96°55.996' W, 1220 m, 21/ix/1998, E. Ramírez (1♂ EBCC). **Puebla**, Carretera Cuautla-Huajuapán, 31/viii/1990, A. Cadena and L. Cervantes (1♀ CNIN). **Tabasco**, Huimanguillo, Laguna Limones, 20/viii/1982, H. Mendoza (1♀ CNIN).

***Promachus giganteus* Hine, 1911 (Figure 15)**

Genus distribution in Mexico. Coahuila, Hidalgo, Mexico City, Michoacán, Nuevo León, San Luis Potosí, Sonora, Veracruz, Yucatán (Papavero 2009).

Species distribution in Mexico. Coahuila (Papavero 2009).

New records. Durango* (Cañón de Fernández and Mapimi).

Material examined. MEXICO: **Durango**, Cañón de Fernández, 13/viii/1978, F.R. Orrante (2♀ CNIN). **Durango**, Mapimi, viii/1986, A. Garza. (1♂ MHNCDMX).

***Pseudorus bicolor* Bellardi, 1861 (Figure 16)**

Genus distribution in Mexico. Guerrero, Jalisco, Michoacán, Morelos, Nayarit, Oaxaca, Puebla, Veracruz and Yucatán (Papavero 1975, 2009).

Species distribution in Mexico. Guerrero, Jalisco, Michoacán, Nayarit, Oaxaca, Veracruz and Yucatán (Papavero 1975, Papavero 2009).

New records. Puebla (Atlixco).

Material examined. MEXICO: **Puebla**, Atlixco, Cerro Tilcuayo [Tropical Deciduous Forest], 7/vii/1978, J. Butze (1♂ CNIN).

***Pseudorus martini* Papavero, 1975 (Figure 17)**

Species distribution in Mexico. Morelos and Puebla (Papavero 1975, 2009).

New records. Jalisco and Michoacán.

Material examined. MEXICO: **Jalisco**, Estación Chamela [Tropical Deciduous Forest] [19°30' N, 105°00' W], 4/ix/1989, E. Ramírez (2♂, 3♀ EBCC); same data, except: 5/ix/1990, 7/ix/1989, and 23/viii/1989 (1♂, 2♀ EBCC); same data, except: 15/viii/1988, 12/ix/1988, and 19/ix/1988 (3♂ EBCC); same data, except: 15/x/1996, R.L. Westcott (1♂ EBCC); 11 km SE Tonaya, 1000 m, 5/x/1991, F.A. Noguera (3♀ EBCC); 6.6 km SW San Buenaventura [Tropical Deciduous Forest], 19°45.06' N, 104°03.55' W, 840 m, 3/xii/1996, F.A. Noguera (1♂ EBCC); same data, except: 30/ix/1997, B. Rodríguez (1♂ EBCC); same data, except: 2/x/1997, M.E. Guardado (1♀ EBCC); same data, except: 3/ix/1997, M.A. Morales (1♀ EBCC); 4 km SW San Buenaventura [Tropical Deciduous Forest], 19°45.72' N, 104°02.87' W, 740 m, 6/xi/1996, M.E. Guardado (1♂ EBCC). **Michoacán**, La Sauda, 8/x/1988, R. Ayala (1♀ EBCC).

Remarks. These specimens represent the first records for the species since its description by Papavero (1975).

***Saropogon pulcherrimus* Williston, 1901 (Figure 18)**

Genus distribution in Mexico. Baja California, Chihuahua, Coahuila, Guerrero, Morelos, Nuevo León, Sinaloa, Sonora and Tamaulipas (Papavero 2009).

Species distribution in Mexico. Guerrero (Williston 1901; Papavero 2009).

New records. Morelos (2.5 km W from Ajuchitlán).

Material examined. MEXICO: **Morelos**, 2.5 km W from Ajuchitlán [Tropical Deciduous Forest], 18°28.065' N, 98°59.546' W, 950 m, 9/x/1996, B. Rodríguez (1♂ EBCC); same data, except: 18/xi/1995, E. Ramírez (1♂ EBCC); same data except: 18/xi/1995, A. Rodríguez (2♀ EBCC).

Remarks. These specimens represent the first records for the species since Williston (1901) described it in the supplement of the *Biologia Centrali-Americana*.

***Wyliea chrysauges* (Osten-Sacken, 1887) (Figure 19)**

Genus distribution in Mexico. Durango, Morelos and Oaxaca (Papavero 2009).

Species distribution in Mexico. Oaxaca (Papavero 2009).

New records. Jalisco* (Sierra de Manantlán).

Material examined. MEXICO: **Jalisco**, [Reserva de la Biosfera] Sierra de Manantlán, Lab[oratorio] Nat[ural] Las Joyas, 19°35'9.6" N, 104°16'27.9" W, 1967 m, 2/xii/2001, F.A. Noguera (1♀ EBCC); same data, except: 9/xi/1994, F.A. Noguera y A. Rodríguez (1♀ EBCC).

Remarks. These specimens represent the first records for the species since Osten Sacken (1887) described it in the *Biologia Centrali-Americana*.

Discussion

Most of the taxonomical information published for Mexican Asilidae is found in outdated works including Macquart (1834, 1838, 1850), Walker (1837, 1851), Wiedemann (1818, 1821, 1828), Bellardi (1861, 1862), Wulp (1882), Osten Sacken (1887), Williston (1901), Martin (1961, 1962, 1963, 1966 a, b, 1967, 1968 a, b, c, d, 1975), Wilcox (1965, 1966), Lavigne (1977) and Lavigne and Dennis (1985). The most recent publications on taxonomy of Mexican robber flies were produced by Estrada (2015 a, b) and Estrada and Contreras-Ramos (2020).

Despite these efforts, the taxonomic knowledge on robber flies in Mexico is still limited. This is reflected in the new records provided here. For example, four of the 19 species treated in this work represent new distribution records sine the original description of the taxa, and 11 of the 15 genera are new to the fauna of at least one Mexican state. Consequently, a further examination of Mexican entomological collections is warranted to seek out further distribution records.

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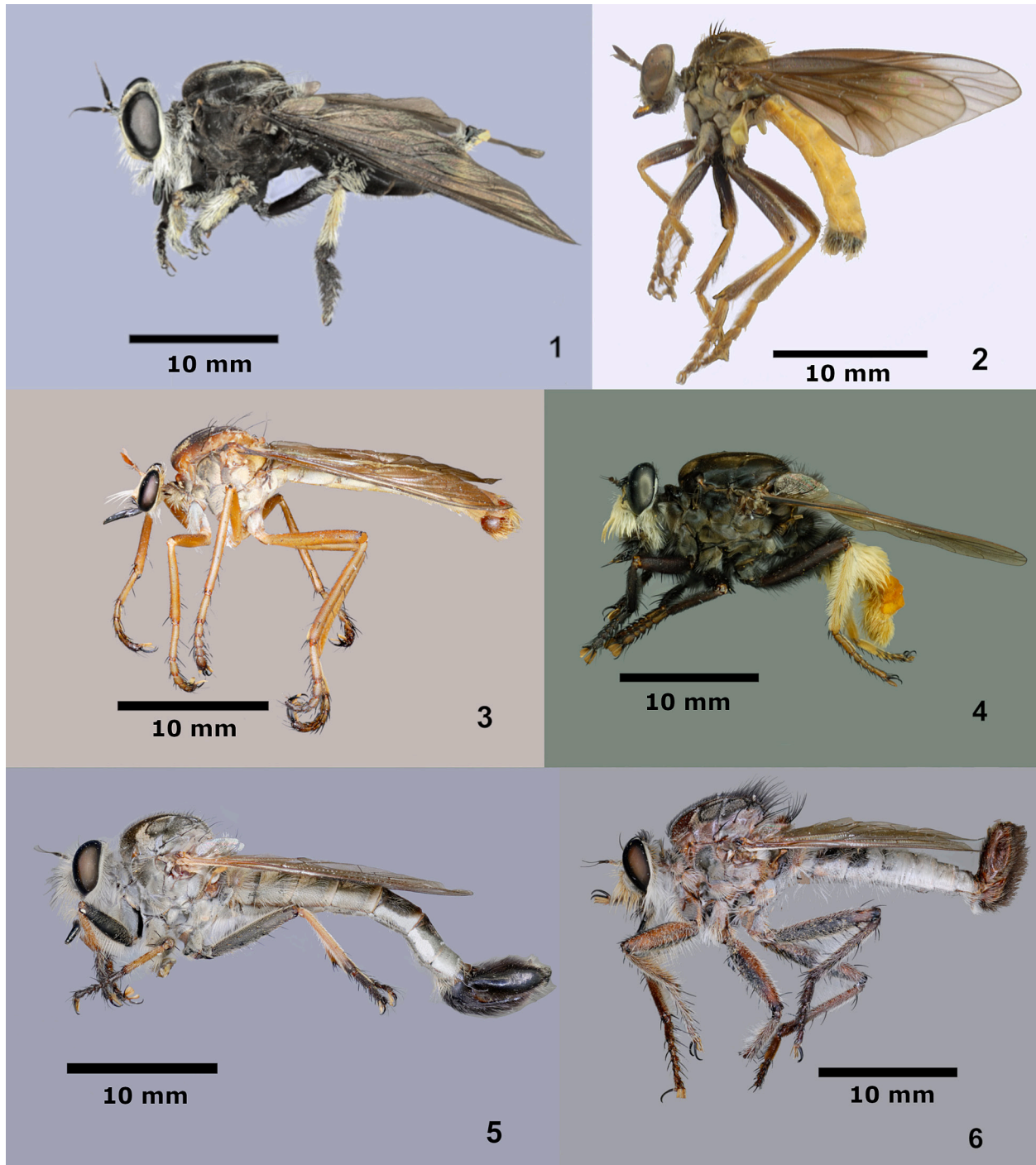
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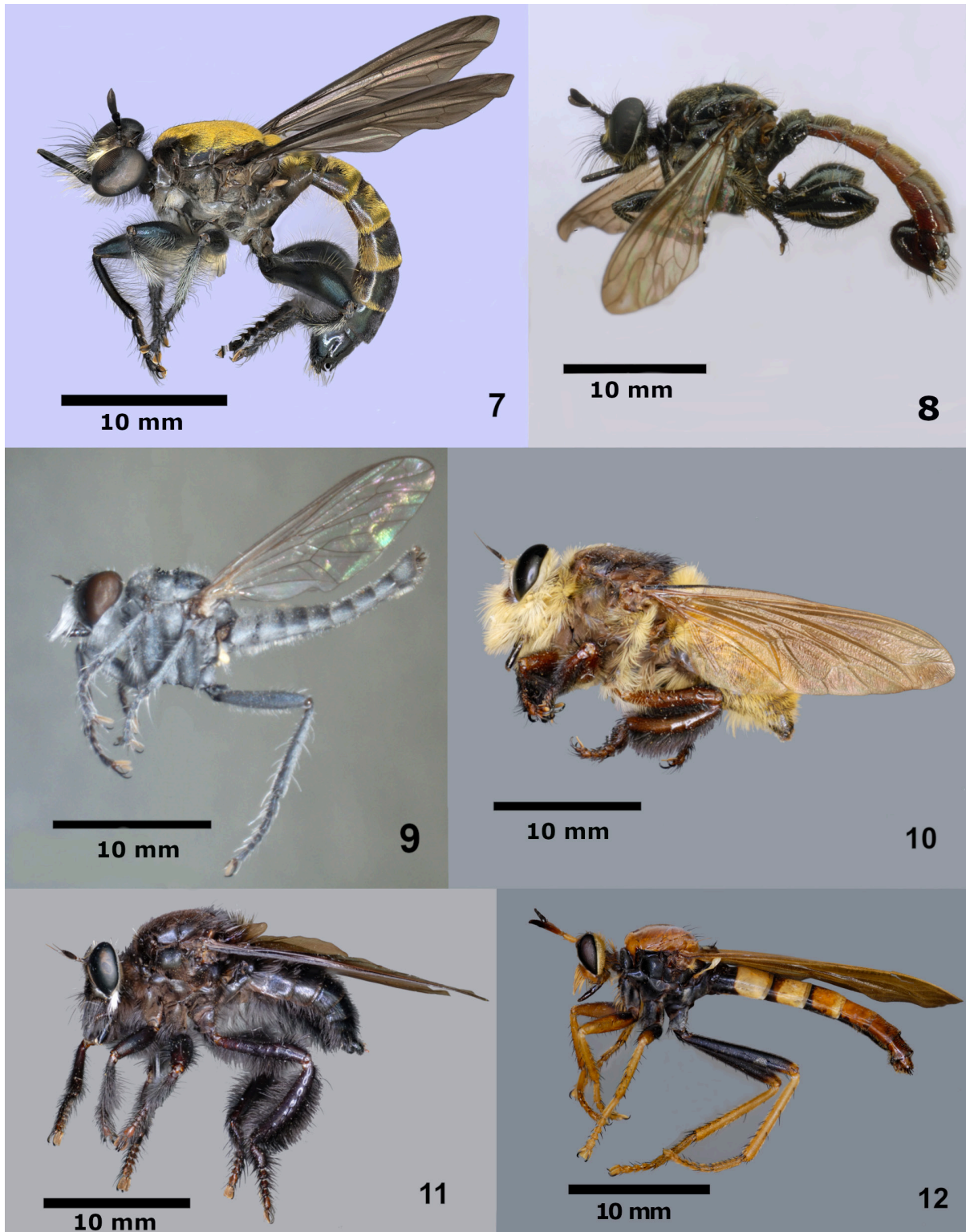
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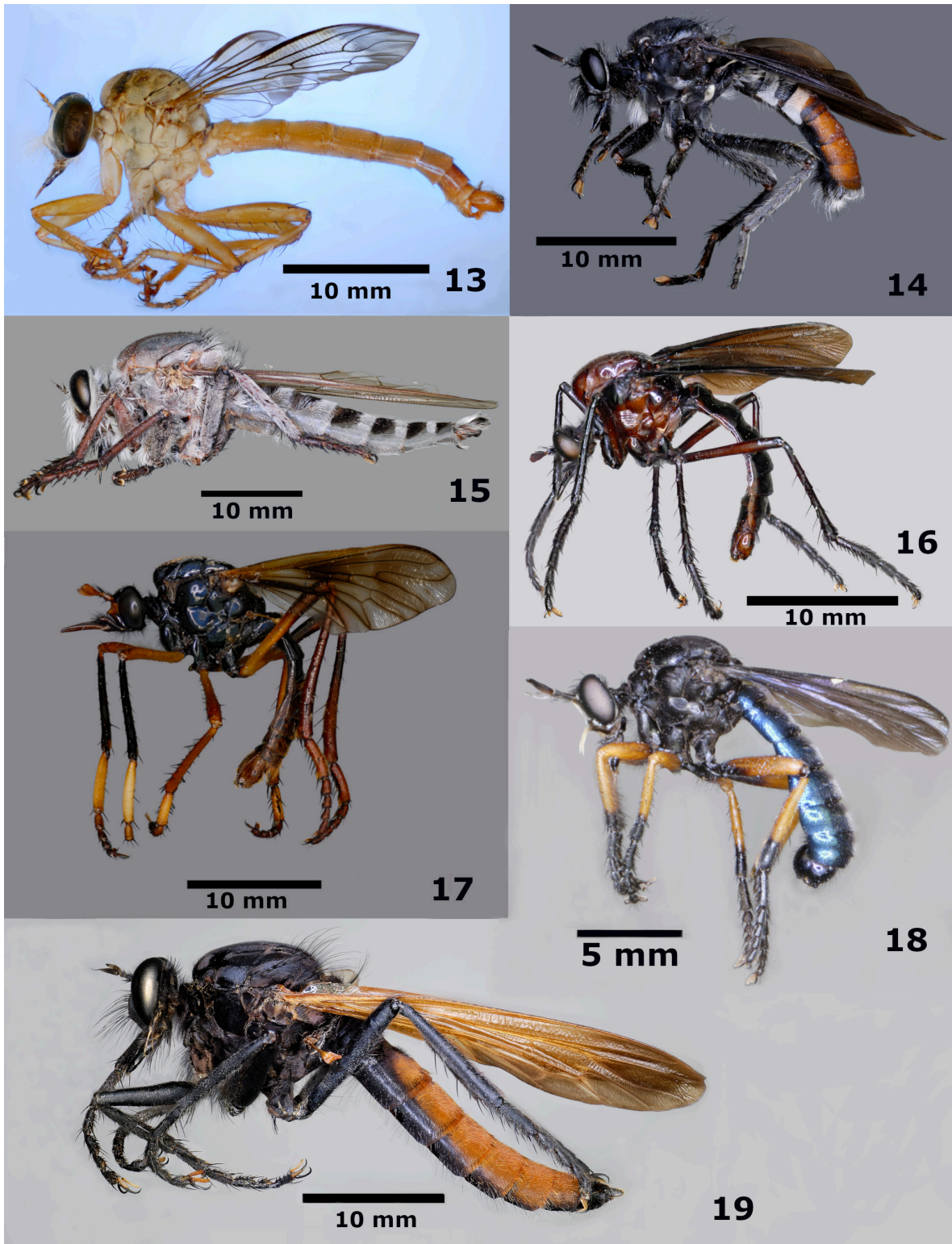
Review editor William L. Grogan, Jr.



Figures 1–6. Habitus of Asilidae spp. **1)** Female habitus of *Carreraomyia acapulquensis* (Cole and Pritchard, 1964). Credit: Enrique Ramírez. **2)** Male habitus of *Cophura humilis* (Bellardi, 1861). Credit: A.E. **3)** Male habitus of *Diogmites cuantlensis* (Bellardi, 1861). Credit: A.E. **4)** Male habitus of *Eccritosia zamon* (Townsend, 1895). Credit: A.E. **5)** Male habitus of *Efferia bicolor* (Bellardi, 1861). Credit: A.E. **6)** Male habitus of *Efferia triton* (Osten-Sacken, 1887). Credit: A.E.



Figures 7–12. Habitus of Asilidae spp. **7)** Male habitus of *Lampria aurifex* Osten Sacken, 1887. Credit: A.E. **8)** Male habitus of *Lampria circumdata* Bellardi, 1861. Credit: A.E. **9)** Female habitus of *Lissoteles vanduzeei* Cole, 1923. Credit: A.E. **10)** Female habitus of *Mallophora faultrix* Osten-Sacken, 1887. Credit: A.E. **11)** Male habitus of *Mallophora leschenaulti* Macquart, 1838. Credit: A.E. **12)** Female habitus of *Ospricerus tequilae* Martin, 1968. Credit: A.E.



Figures 13–19. Habitus of Asilidae spp. **13)** Male habitus of *Polacantha (Echinitropis) xanthocera* (Williston, 1901). Credit: A.E. **14)** Male habitus of *Prolepsi tristis* (Walker, 1851). Credit: A.E. **15)** Male habitus of *Promachus giganteus* Hine, 1911. Credit: A.E. **16)** Male habitus of *Pseudorus bicolor* Bellardi, 1861. Credit: A.E. **17)** Male habitus of *Pseudorus martini* Papavero, 1975. Credit: A.E. **18)** Male habitus of *Sarapogon pulcherrimus* Williston, 1901. Credit: A.E. **19)** Female habitus of *Wyliea chrysauges* (Osten Sacken, 1887). Credit: Enrique Ramírez.

