

REVISION OF THE *BOMBYLIUS COMANCHE* GROUP OF THE NEW WORLD (DIPTERA: BOMBYLIIDAE)

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Abstract. Twenty-five species of the *Bombylius comanche* group from the New World are treated. Nineteen species are described as new: *Bombylius aureocookae*, *B. aztec*, *B. boharti*, *B. c-album*, *B. fisheri*, *B. gossyporrhus*, *B. grandiosus*, *B. leberi*, *B. marilynae*, *B. neotropicus*, *B. phlogmodes*, *B. quadricolor*, *B. quirinus*, *B. reginae*, *B. rhea*, *B. sylphae*, *B. willistoni*, *B. zapataensis*, and *B. zircon*. Illustrations for most species are provided. First descriptions of male and female genitalia are given for some described species, and a key to species is provided. This species group is the southernmost representative of the genus *Bombylius* in the Western Hemisphere. No true *Bombylius* is known from South America; previous records of species allocated to *Bombylius* from South America should be transferred to other genera.

The genus *Bombylius* Linnaeus is one of the largest in the family Bombyliidae, with over 400 species occurring in most areas of the world except Australia (Evenhuis 1983) and South America (Evenhuis, unpubl. data). The *Bombylius* fauna of Mexico and Central America is one of the least known. While the Nearctic species were recently revised by Hall & Evenhuis (1980), not only were the large collections of Mexican and Central American *Bombylius* made by the late Dr Reginald H. Painter and his wife unavailable during that study, but the geographical parameters of that study obviated the inclusion of species occurring in the Neotropical areas of Mexico and Central America.

This paper involves study of the *Bombylius comanche* Painter group, which comprises a major portion of the *Bombylius* found in Mexico and areas to the immediate south. The *Bombylius comanche* group is defined here to comprise those taxa which possess vestigial or reduced pulvilli (predominantly up to just $\frac{1}{4}$ the length of the claw); all or almost all golden yellow, orange, or pale yellow body pile and tomentum; face and front with dull grayish black ground color; orange prealar macrochaetae; dark brown basally tinted wings in males; hyaline to yellowish basally tinted wings in females (hyaline in both sexes in *flavipilosus* Cole); male genitalia with well-pronounced mesal apical lobe of basistylus; large dististylus usually subtriangular in shape; large cerci

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(length $2 \times$ width); and female genitalia with 12–20 pairs of spines on the acanthophorites.

The *Bombylius comanche* group is distributed throughout the midwestern and southwestern portions of the United States southward throughout Mexico into Neotropical Central America (Fig. 1). No specimens have been found south of Nicaragua, but specimens could be expected in the relatively arid northwestern portion of Costa Rica (Guanacaste Province) as a continuation of the southerly distribution of this species group. Species in this group are apparently closest to those in the genus *Parabombylius* Williston. These 2 groups share many morphological and ecological characteristics and are often collected together (cf. Painter 1940), sometimes off the same flower. Many species of the *comanche* group exhibit remarkable likenesses to some *Parabombylius* species (viz., *P. ater* Coquillet and allies), possibly due to convergent evolution of the 2 groups. Moreover, species of the *B. comanche* group and species of *Parabombylius* occur sympatrically during the late summer and fall months, whereas most other Nearctic *Bombylius* species are found in the spring and early summer months.

This paper describes 19 new species belonging to the *comanche* group and provides a key to the species occurring in the New World. Notes, descriptions, and new distribution records are given for previously described species in the group. The majority of specimens examined in this study are from the large number of *Bombylius* collected by R.H. & E.M. Painter during their trips throughout Mexico and the southwestern United States. The Painter Collection of Bombyliidae is deposited in the United States National Museum of Natural History, Washington, D.C. (USNM). Other specimens examined during this study were obtained from New Mexico State University, Las Cruces (NMSU), Los Angeles County Museum of Natural History (LACM), British Museum of Natural History (BMNH), University of California, Berkeley (UCB), Universidad Nacional Autonoma de Mexico, Mexico, D.F. (UNAM), Utah State University, Logan (USU), and the author's personal collection (NLE). Unless otherwise indicated, new species are deposited in the Bishop Museum, Honolulu (BPBM).

***Bombylius aureocookae* Evenhuis, new species**

Fig. 2

This species is closest in appearance to *comanche* Painter and can be separated from it by the lack of pink to reddish ground color on the lateral portions of the abdominal tergites and the lack of brown pile on the mid coxa.

♂. Length: 7.5–8.0 mm. Head: face, front and oral margin black to brownish black; face black pilose; oral margin mixed yellow and black pilose; front erect black pilose, tuft of yellow tomentum lateral to antennal base; ocellar tubercle black with long black hair; occiput and gula (mentum) gray; occiput yellow pilose, minute black hairs on upper portion posterior to eye margin; gula pale yellow pilose; antennal segments I and II gray, black pilose, segment III and stylar segments black, bare; antennal ratio: 2:1:6; palpus black with black hairs laterally. Thorax: mesonotum and scutellum dull black, dense yellow pilose, sparse golden tomentose;



FIG. 1. Map of North America showing distribution of the *Bombylius comanche* group (dots).

pleura grayish black, yellow pilose; halter stem amber, knob white. *Legs*: coxae black, yellow pilose; femora black basally, amber apically, yellow pilose basally with a few black hairs intermixed; hind femur with 7–8 black spines ventrally on apical $\frac{3}{4}$; tibiae and tarsal segments I–II amber, tarsal segments III–V black; tibial and tarsal spines small, black; claws black; pulvilli

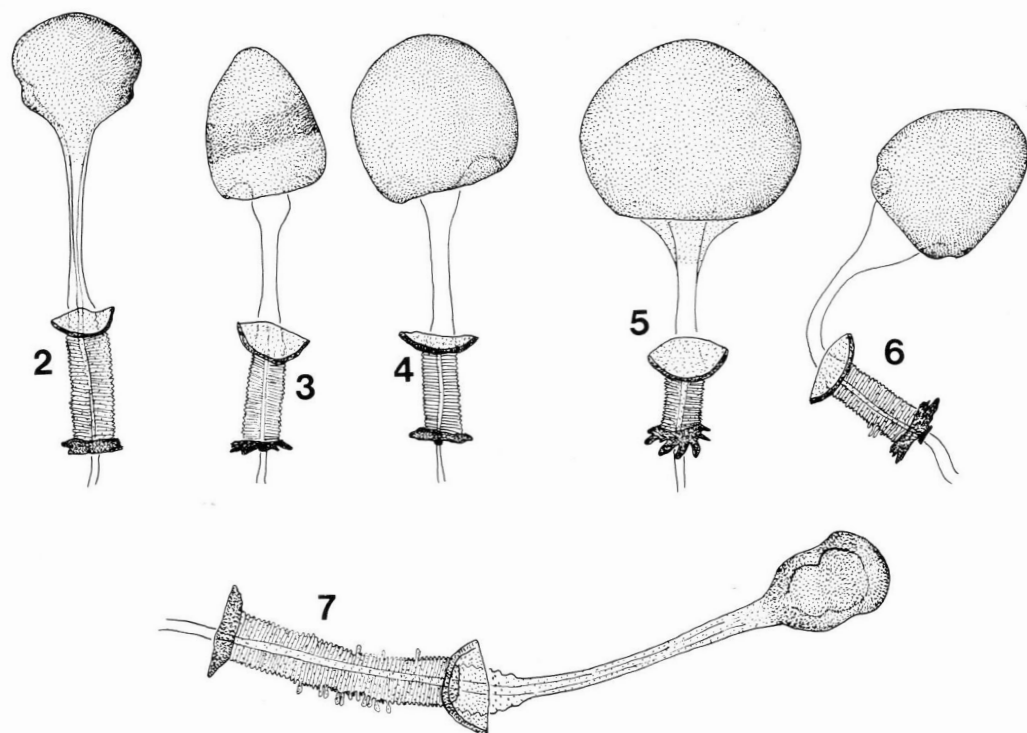


FIG. 2-7. *Bombylius* ♀ spermathecae: 2, *B. aureocookae*; 3, *B. clio*; 4, *B. comanche*; 5, *B. fisheri*; 6, *B. flavipilosus*; 7, *B. io*.

short, $\frac{1}{6}$ length of claws. *Wing*: smoky brown basally to end of vein R_1 and middle of discal cell; anal and 4th posterior cells entirely infuscated with brown, rest of wing hyaline; veins dark brown; r-m crossvein at basal $\frac{1}{4}$ of discal cell; discal cell acuminate distally; squama dark brown with golden yellow fringe. *Abdomen*: tergites dull black; tergites I-II golden orange pilose, tergites III-VII pale yellow to white pilose and tomentose; tergite III with golden orange pile laterally; tergites IV-VII pale yellow to white pilose laterally; sternites grayish black, dense yellow pilose and tomentose. *Genitalia*: not dissected.

♀. Similar to ♂ except eyes separated at vertex by $1.5\times$ width of ocellar tubercle; pile and tomentum on head orange except for a few black hairs mixed in on ocellar tubercle; antenna black, segments I and II orange pilose; dorsum of thorax and abdomen dense orange pilose and tomentose; femora amber with yellow hairs; wing tinted yellow at extreme base, otherwise hyaline; discal cell not acuminate apically, with normal apical crossvein; sternum orange-yellow pilose and tomentose. *Genitalia* (Fig. 2): acanthophorites with 10-11 pairs of spines hooked apically; spermathecal reservoir subspherical, sclerotized on apical $\frac{3}{4}$; apical spermathecal duct long, $1.5\times$ length of ejaculatory apparatus; ejaculatory apparatus without canaliculi; apical valve cup-shaped; basal valve disc-shaped, flat.

Holotype ♂ (BPBM 12,417), allotype, 3♀ paratypes, MEXICO: DURANGO: 8.5 km W of La Zarca, 24.IX.1981 (N.L. Evenhuis & G.S. Forbes). *Holotype*, allotype, and 2 paratypes BPBM; 1 paratype NLE.

Etymology. This species is named in honor of my good friend and fellow desert biologist, Ms Ann Cook, and for the golden color of the body pile of this beautiful insect (Latin *aureo*, "golden").

***Bombylius aztec* Evenhuis, new species**

This species is most similar to *B. frommerorum* Hall & Evenhuis, but can be separated from it by the dense golden orange pile and tomentum (pile and tomentum pale yellowish in *frommerorum*) and antennal segments I and II with all yellow pile (black pile present on these segments in *frommerorum*).

♀. *Length:* 7.0 mm. *Head:* black; dense golden orange pilose and tomentose, black pile wanting; antenna black, segment I with yellow pile equal in length to that segment, segment II length equal to width, with short yellow pile equal in length to that segment, segment III and stylar segments bare; antennal ratio: 2:1:3.5; palpus black with long black hairs laterally and apically. *Thorax:* dull black; mesonotum and scutellum dense golden orange pilose and tomentose; pleura yellow pilose; halter stem amber, knob yellow. *Legs:* coxae, femora, tibiae, and tarsal segments I–II amber, tarsal segments III–V dark brown; claws black; pulvilli $\frac{1}{4}$ length of claws. *Wing:* hyaline; veins dark brown; r-m crossvein near middle of discal cell; squama amber with fringe of golden yellow pile. *Abdomen:* tergites black, dense golden orange pilose and tomentose; sternites gray, sparse golden pilose and tomentose. *Genitalia:* not dissected.

♂. Unknown.

Holotype ♀, MEXICO: MEXICO: Chapingo, 20.IX.1967 (R.H. & E.M. Painter). 1♀ paratype, MEXICO: GUANAJUATO: 19 mi [30.6 km] E of Celaya, 26.VIII.1968 (Painter & Painter). Type and paratype in USNM.

***Bombylius boharti* Evenhuis, new species**

Most similar in appearance to *B. pulcher* Hall & Evenhuis, this species is easily separated on the basis of its orange to amber labrum (black in *pulcher* and most other species) and the presence of tufts of tomentum lateral to the antennal bases (absent in *pulcher*).

♂. *Length:* 8.0 mm. *Head:* grayish black; face and oral margin intermixed yellow and black pilose; frontal triangle with erect short black pile, tuft of golden yellow tomentum present lateral to antennal base; ocellar tubercle with black hairs; occiput and gula grayish white; occiput dense pale yellow to yellow pilose and tomentose; gula sparse pale yellow to white pilose; antennae dark brown to black, segments I and II with dark brown pile, segment III and stylar segments bare; antennal ratio: 2:1:4; palpus brown with long yellow hairs laterally and apically; proboscis black above, labrum contrasting orange below. *Thorax:* dull black; mesonotum and scutellum dense yellow pilose and tomentose; mesonotum with erect black hairs mixed in on dorsum, black hairs also on humeral callus; pleura gray, dense pale yellow pilose; halter stem brown, knob orange. *Legs:* coxae gray, pale yellow pilose; femora, tibiae and tarsi yellow; femora pale yellow pilose basally; hind femur with 7–8 spines ventrally along apical $\frac{3}{4}$; claws black; pulvilli $\frac{1}{4}$ length of claws. *Wing:* dark brown at extreme base, color extending to arculus, hyaline beyond; veins dark brown; r-m crossvein at $\frac{3}{8}$ of discal cell; squama light brown with fringe of golden yellow pile; basicosta predominantly golden pilose,

with a few black hairs mixed in. *Abdomen*: tergites dull black, dense yellow pilose and tomentose, long black hairs on posterior margin of tergites II–VII, increasing in number on each successive segment; sternites grayish brown, sparse pale yellow pilose and tomentose. *Genitalia*: not dissected.

Holotype ♂, MEXICO: BAJA CALIFORNIA SUR: La Paz, 20.II.1974 (G.E. Bohart) (USNM).

Etymology. This species is named in honor of its collector, Dr G.E. Bohart.

Remarks. The unique holotype male has the right wing broken off and missing, and many of the legs are broken off beyond the femur; otherwise, it is in good condition.

Bombylius c-album Evenhuis, new species

Fig. 16

This species is closest in appearance to *B. pulcher* Hall & Evenhuis and can be separated from it by the lack of minute black hairs on the occiput directly behind the posterior eye margin.

♂. *Length*: 8.0–9.5 mm. *Head*: black; face and oral margin intermixed black and yellow pilose; front with erect black hair, tuft of sparse yellow tomentum lateral to antennal base; ocellar tubercle black pilose; occiput and gula pale yellow pilose; antenna black, segment I mixed black and yellow pilose, segment II short black pilose, segment III and stylar segments bare; antennal ratio: 2:1:6; palpus black, long yellow hairs laterally; proboscis black. *Thorax*: mesonotum and scutellum dull black, dense yellow pilose, sparse yellow tomentose; pleura gray, yellow pilose; halter stem tan, knob dark brown. *Legs*: coxae black, yellow pilose; femora black with yellow scales, yellow pilose basally; hind femur with 7–8 black spines ventrally on apical ½; tibiae brownish; tarsi dark brown to black, spines black; claws black; pulvilli vestigial. *Wing*: smoky brown basally to end of vein R₁ and anterior and posterior crossveins; veins dark brown; r-m crossvein at basal ½ of discal cell; squama dark brown with yellow fringe. *Abdomen*: tergites dull black; tergites I–III yellow pilose, a few black hairs laterally on segments II–III; tergites IV–VII white pilose laterally, white tomentose dorsally (combination of pile and tomentum on these segments forming a “c” pattern on abdominal dorsum), sparse black hairs on posterior margins; sternites grayish black, pale yellow pilose; minute reddish brown tomentum on sternites II–V. *Genitalia* (Fig. 16): in lateral view with basistylus ovate, clawed basally, apical mesal lobe not greatly enlarged; dististylus long, porpoise-shaped, hooked apically; epiphallus with small dorsal projection; tip of aedeagus truncate; basal apodeme small, racquet-shaped; epanandrium subrhomboid with slightly pointed anterior and posterior processes; cercus large, length ca. 3 × width.

♀. Similar to ♂ except eyes separated at vertex by 1.5 × width of ocellar tubercle; front dense yellow tomentose; face dense yellow pilose, sparse black pile restricted to gena; ocellar tubercle mixed black and yellow pilose; abdominal tergites with vestiture as ♂ plus golden tomentum on tergites II–VII; apical sternite with black pile. *Genitalia*: not dissected.

Holotype ♂, MEXICO: PUEBLA: 32 mi [51.5 km] SW of Tehuacan, 6500 ft [1981.2 m], 20.IX.1968 (R.H. & E.M. Painter) (USNM). Allotype ♀, 1♂ paratype, MEXICO: PUEBLA: 30 mi [48.3 km] SW of Tehuacan, 6800 ft [2073 m], 19.IX.1968 (Painter & Painter) (USNM). Other paratypes: MEXICO: HIDALGO: 1♀, Tepeapulco, 18.IX.1974 (G.E. Bohart & W. Hanson) (USU); JALISCO: 1♂, IX.1965 (N.L.H. Krauss) (USNM).

Etymology. This species is named for the “C” pattern formed by the combination

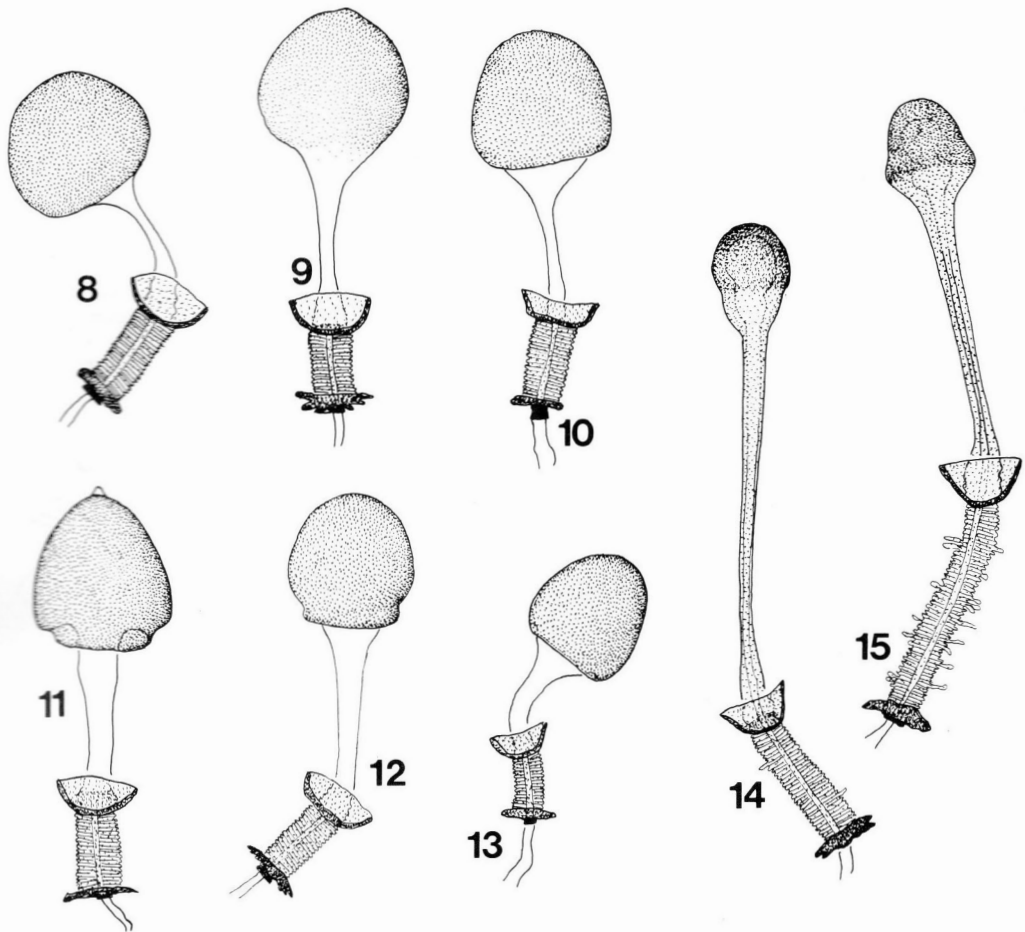


FIG. 8-15. *Bombylius* ♀ spermathecae: 8, *B. leberi*; 9, *B. neotropicus*; 10, *B. phlognodes*; 11, *B. quadricolor*; 12, *B. quirinus*; 13, *B. sylphae*; 14, *B. zapataensis*; 15, *B. zircon*.

of white pile and tomentum on the abdominal dorsum, which is most conspicuous in the males (Latin *albi*, "white").

***Bombylius clio* Williston**

Fig. 3, 17, 19, 24

Bombylius clio Williston, 1901: 285.

This species is the most commonly encountered species of *Bombylius* in Mexico and is easily separated from its congeners by the closed anal cell (Fig. 19). In examinations of over 80 specimens, including the lectotype male in BMNH, there appeared little variation. The redescription by Painter & Painter (1962) and that in Hall & Evenhuis (1980) suffice to identify this species. The male and female genitalia are described below for the first time.

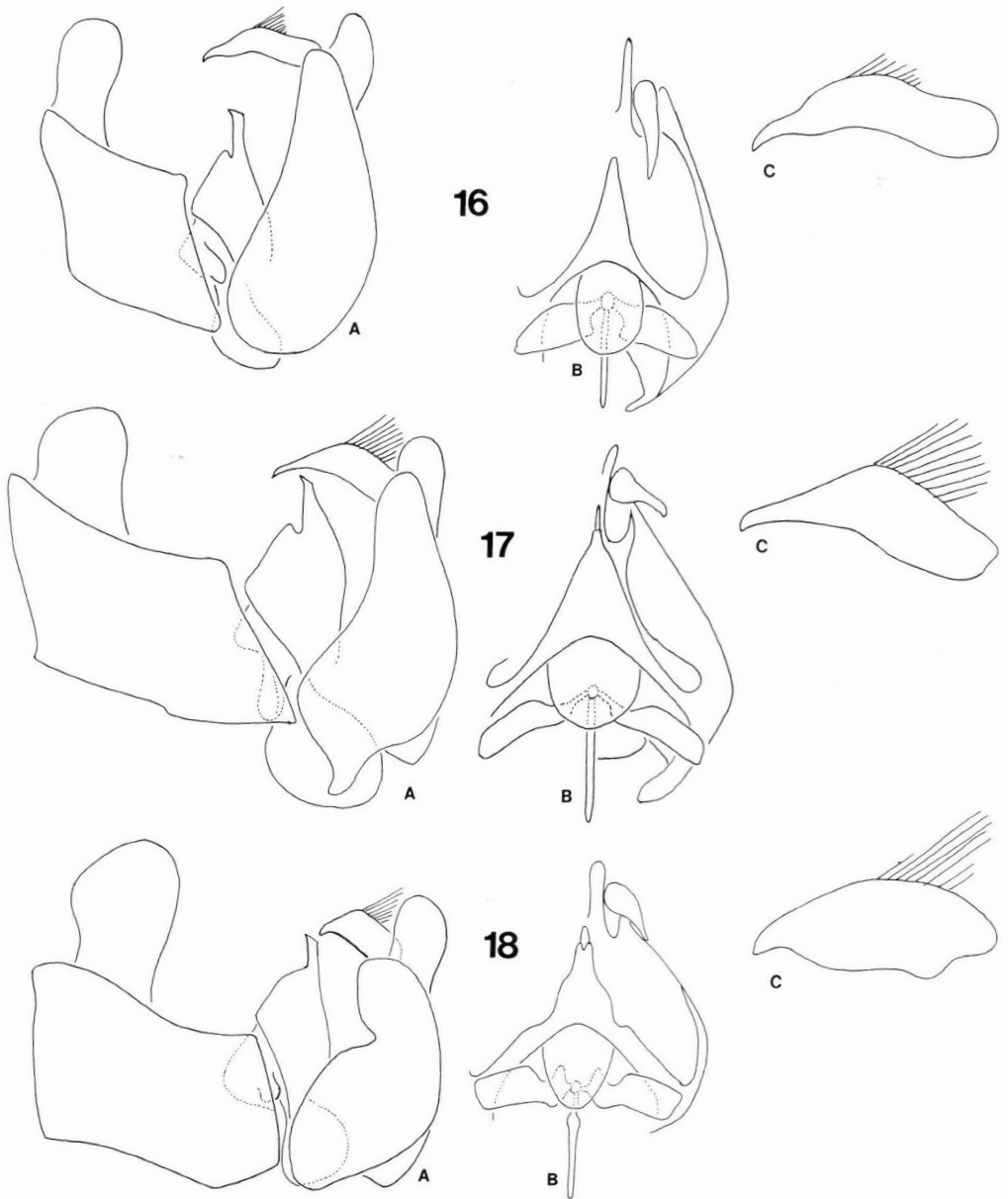


FIG. 16-18. *Bombylius* ♂ genitalia. 16, *B. c-album*: **A**, lateral view; **B**, dorsal view; **C**, dististylus, lateral view. 17, *B. clio*: **A**, lateral view; **B**, dorsal view; **C**, dististylus, lateral view. 18, *B. comanche*: **A**, lateral view; **B**, dorsal view; **C**, dististylus, lateral view.



FIG. 19-20. *Bombylius* wings: 19, *B. clio* ♂; 20, *B. grandiosus* ♀.

♂ *genitalia* (Fig. 17). In lateral view with basistylus linear-ovate, narrowing toward apex, long thin clawed process basally, mesal apical lobe smaller than in *comanche*; dististylus long, thin, tapering to hooked apex; epiphallus broad basally with pointed dorsal projection; neck of epiphallus straight, length ca. $2.5 \times$ width; tip of aedeagus truncate; basal apodeme moderately large, rounded; epandrium subquadrate, anterior and posterior processes pointed; cercus large, length ca. $1.5 \times$ width.

♀ *genitalia* (Fig. 3). Acanthophorites with 17 pairs of spines hooked apically; spermathecal reservoir subspherical-conate, with subbasal sclerotization; apical spermathecal duct short, slightly longer than ejaculatory apparatus; ejaculatory apparatus without canaliculi; apical valve cup-shaped; basal valve flat, disc-shaped.

B. clio has been recorded in Hall & Evenhuis (1980) from the following Mexican states: Chiapas, Guerrero, and Puebla. Numerous specimens of *B. clio* were examined in this study; of those, the following are new distribution records.

Material examined (new records). MEXICO. GUANAJUATO: 1♀, Comanjilla, 23.IX.1963 (R.H. & E.M. Painter) (USNM). JALISCO: 1♀, Lago de Chapala, La Foresta, 4-5.IX.1977 (E.I. Schlinger) (UCB). MEXICO: 12♂♂, Chapingo, 14.IX-2.X.1968 (R.H. & E.M. Painter); 1♀, 8 mi [12.9 km] E of Texcoco, 9.X.1968 (Painter & Painter) (USNM). MICHOACAN: 1♀, 3 mi [4.8 km] W of Morelia, 6100 ft [1859 m], 21.IX.1963 (Painter & Painter) (USNM). MORELOS: 3♂♂, Cuernavaca, Lobo Cyn, 27-29.IX.1968 (Painter & Painter) (USNM); 4♂, S of Cuernavaca, 15.IX.1972, 12.IX.1973, 1.IX.1974, 5.IX.1980 (W. Hanson, J. Poff, J.B. Karren, G.E. Bohart, B.A. Haws) (USU). OAXACA: 2♂, 1 mi [1.6 km] NW of Huajuapán, 11.IX.1963 (Painter & Painter) (USNM).

Berry & Vaquero (1957) record this species from El Rosario, El Salvador; however, at the time of this study, the specimens from this locality were not available, hence the record could not be confirmed. The distribution of *B. clio* is mapped in Fig. 24.

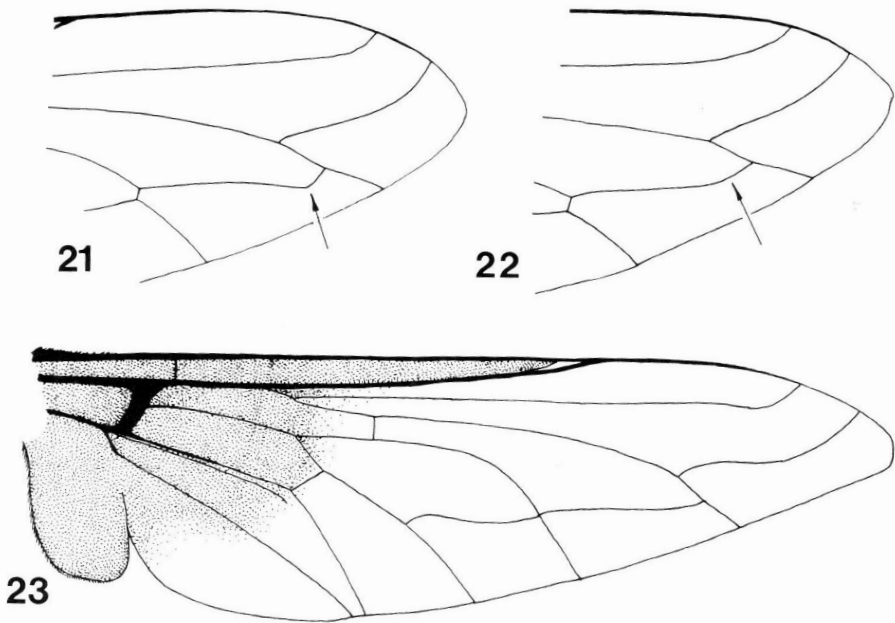


FIG. 21-23. *Bombylius* wings. 21-22, *B. leberi*: 21, tip of ♀ wing showing angled portion of vein M_1 (arrow); 22, tip of ♂ wing showing normal condition of vein M_1 (arrow). 23, *B. zircon*.

Bombylius comanche Painter

Fig. 4, 18

Bombylius comanche Painter, in Painter & Painter, 1962: 11.

Numerous specimens examined show no appreciable differences from the description given in Hall & Evenhuis (1980). The male and female genitalia are described below for the first time.

♂ genitalia (Fig. 18). In lateral view with basistylus broadly ovate, with dorsal incision, slightly clawed basally, apical mesal lobe large; dististylus short (as compared to other species in the *comanche* group), broad, tapering to bluntly hooked apex; epiphallus broad basally, dorsal projection weak or wanting; neck of epiphallus short, length subequal to width; tip of aedeagus truncate; basal apodeme small, rounded, paddle-shaped; epandrium subrectangular, anterior and posterior processes pointed; cercus large, length ca. $2 \times$ width.

♀ genitalia (Fig. 4). Similar to that of *phlogmodes*, n. sp., except slightly larger with apical valve cup-shaped, flattened.

Hall & Evenhuis (1980) record this species from the following states in the USA: Arkansas, Colorado, Kansas, Missouri, Montana, Nebraska, New Mexico, Oklahoma, South Dakota, and Texas. The following new distribution record extends its range into Michigan.

Material examined. USA. MICHIGAN: Kalamazoo Co: 2♀, Gull Lake Biol. Stn, 20-25.VII.1968 (R.L. Fisher) (USNM).

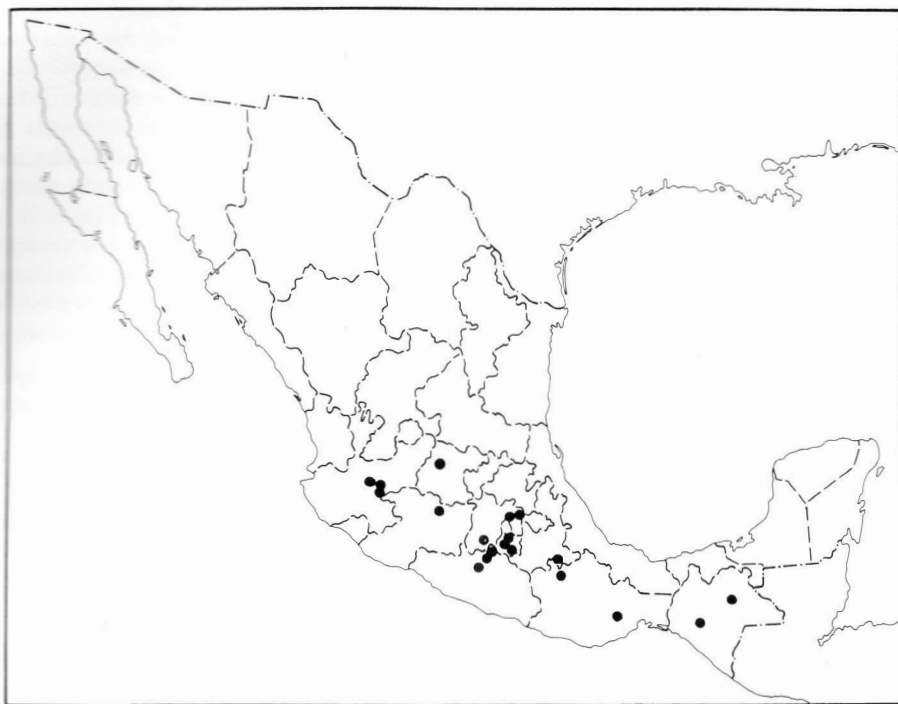


FIG. 24. Map of Mexico showing distribution of *B. clio* (dots).

Bombylius fisheri Evenhuis, new species

Fig. 5, 25

This species runs to *B. medorae* Painter in the key to species in Hall & Evenhuis (1980). It is separated from *medorae* by the lack of transverse white tomentose crossbands on the abdominal tergum and by its more southerly distribution in Neotropical Mexico.

♂. *Length*: 10.0–10.5 mm. *Head*: gray-black; face, front and ocellar tubercle entirely black pilose, yellow pile and tomentum wanting; no tuft of tomentum lateral to antennal base; occiput yellow pilose and tomentose, row of minute black hairs posterior to eye margin; occiput and gula gray; gula pale yellow pilose; antenna black, segments I and II black pilose, segment III and stylar segments bare; antennal ratio: 2:1:4; palpus brown, orange pubescent laterally; proboscis black. *Thorax*: mesonotum and scutellum dull black, dense short yellow pilose, sparse golden tomentose; pleura gray-black, golden yellow to yellow pilose; halter stem amber, knob cream-colored. *Legs*: as in *zapataensis*, n. sp., but with sparse white femoral pile basally. *Wing*: dark brown basally, color extending to end of vein R_1 , r-m crossvein, posterior crossvein and base of alula; veins dark brown; r-m crossvein at middle of discal cell; anal cell open; squama tan with fringe of yellow pile. *Abdomen*: dull black; tergites I–IV dense golden pilose, sparse golden tomentose; tergites V–VII yellowish white to white pilose, dense white tomentose; posterior margins of tergites II, III, and sometimes IV with sparse black hairs; sternites intermixed yellow and black pilose. *Genitalia* (Fig. 25): in lateral view with basistylus linear-ovate, slightly clawed basally; dististylus machete-shaped, broadest at apical $\frac{3}{4}$, hooked at apex; epi-

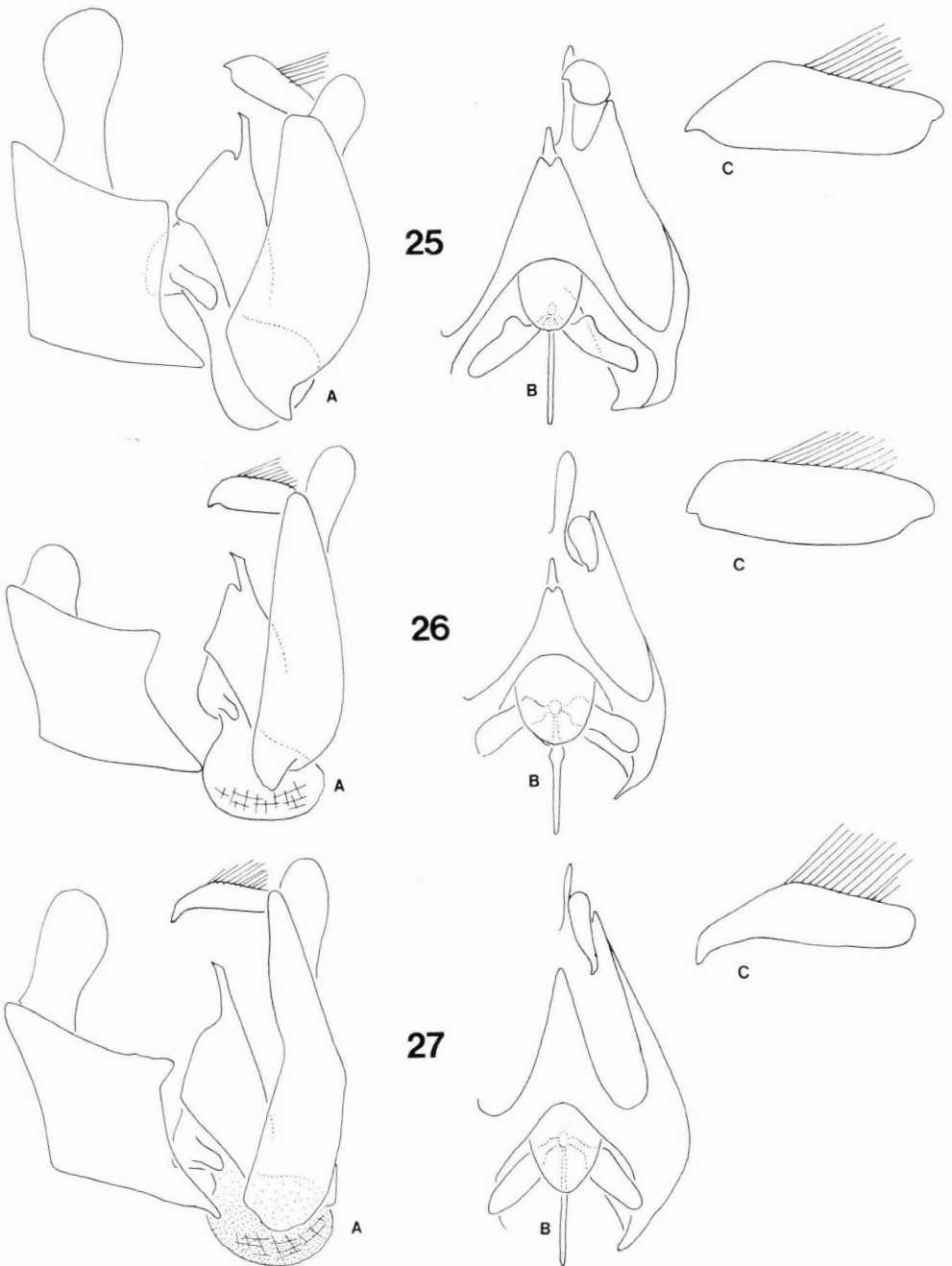


FIG. 25-27. *Bombylius* ♂ genitalia. 25, *B. fisheri*: A, lateral view; B, dorsal view; C, dististylus, lateral view. 26, *B. frommerorum*: A, lateral view; B, dorsal view; C, dististylus, lateral view. 27, *B. gossyporrhus*: A, lateral view; B, dorsal view; C, dististylus, lateral view.

phallus short, broad, tapering to apex; basal apodeme racquet-shaped, small; epandrium subquadrate, with pointed anterior and posterior processes; cercus large, length $2.5 \times$ width.

♀. Similar to ♂ except eyes separated at vertex by $2.5 \times$ width of ocellar tubercle; face and oral margin dense yellow pilose, gena intermixed black and yellow pilose; front bare immediately above antennal bases, intermixed erect black and yellow pilose elsewhere; occiput without row of black hairs; dorsum of thorax and abdomen dense golden yellow pilose and tomentose; wing hyaline; abdominal tergites with black hairs restricted to posterior margin of tergite II; tergites II–VI with whitish yellow tomentose longitudinal stripe middorsally; sternites I–III sparse yellow pilose and tomentose; sternites IV–VII dense black pilose. *Genitalia* (Fig. 5): acanthophorites with 14–15 pairs of spines hooked apically; spermathecal reservoir subhemispherical, sclerotized; apical spermathecal duct slightly sclerotized, length almost $3 \times$ that of ejaculatory apparatus; apical valve cup-shaped; basal valve disc-shaped, flat.

Holotype ♂, NICARAGUA: 36 km SE of Leon, 22.VIII.1975 (E.M. Fisher) (BPBM 12,416). *Allotype*, 1♀ paratype, MEXICO: OAXACA: 6 mi [9.6 km] W of Tehuantepec, 500 ft [152.4 m], 17.IX.1967 (R.H. & E.M. Painter) (USNM). Other paratypes. GUATEMALA: 14♂, 96 mi [154.5 km] E of Guatemala City, 8–10.IX.1967 (Painter & Painter). HONDURAS: 1♀, 7 mi [11.3 km] NE of Choluteca, 12.VIII.1967 (Painter & Painter) (USNM). MEXICO: NAYARIT: 2♀, Laguna del Oro, 25.VIII.1976 (W. Hanson, M. Schwartz) (USU); OAXACA: 2♀, 3–6 mi [4.8–9.6 km] W of Tehuantepec, 17.IX.1967 (Painter & Painter) (USNM); PUEBLA: 1♀, 9 mi [14.5 km] W of Izucar d.M., 3.IX.1974 (G.E. Bohart & Hanson) (USU); SINALOA: 1♂, 14 mi [22.5 km] SE of Elota, 28.VIII.1976 (J.P. & K.E. Donahue) (LACM).

Etymology. This species is named in honor of Dr Eric M. Fisher, who collected the holotype and who has generously given me many interesting Mexican and Central American specimens of Bombyliidae.

***Bombylius flavipilosus* Cole**

Fig. 6

Bombylius flavipilosa Cole, 1923: 308.

Bombylius flavipilosus: Painter & Painter, 1965: 409.

Since the last treatment of this relatively rare species (a total of about 15 specimens are known in collections) in Hall & Evenhuis (1980), no new state records have been found. It is known only from Arizona, New Mexico, and Baja California Norte. The female genitalia are described below for the first time.

♀ *genitalia* (Fig. 6). Acanthophorites with 11–12 pairs of spines hooked apically; vaginal apodeme with lateral sclerites L-shaped, sclerotized, medial sclerite wanting; spermathecal reservoir subspherical, entirely sclerotized brown; apical spermathecal duct ca. $1.5 \times$ length of ejaculatory apparatus; ejaculatory apparatus short, with very few canaliculi; apical valve cup-shaped, relatively flat; basal valve disc-shaped, flat.

***Bombylius frommerorum* Hall & Evenhuis**

Fig. 26

Bombylius frommerorum Hall & Evenhuis, 1980: 48.

The male genitalia of this species are described for the first time below.

♂ *genitalia* (Fig. 26). In lateral view with basistylus linear, length ca. $3.5 \times$ greatest width, slightly clawed basally, apical mesal lobe very large, length ca. $1.5 \times$ width; dististylus broad,

length only ca. $2\times$ width, with small hook at apex; epiphallus broad basally, tapering to neck of epiphallus, with small dorsal projection; neck of epiphallus long, thin, length ca. $2\times$ width; aedeagal tip truncate, with small hook at apex; basal apodeme rounded, moderately large; epandrium subquadrate with well-pronounced anterior and posterior processes; cercus large, length ca. $1.7\times$ width.

Since the original description, the following records are reported here for the first time, extending its distribution eastward into Texas and southward into northern Mexico.

Material examined. MEXICO. CHIHUAHUA: 1♂, 5 mi [8.0 km] NW of Colonia Juarez, Rio Piedras Verdes, 29.VIII.1981 (G.S. Forbes) (NLE); 1♂, 2 km W of El Faro, 2.V.1981 (Forbes) (NMSU). USA. TEXAS: 2♀, Lubbock, 5.VIII.1979 (H. Cobb) (USU); 1♀, Floresville, 7.V.1960 (J. Gillaspay) (UCB).

Bombylius gossyporrhus Evenhuis, *new species*

Fig. 27

This species has been collected from Durango in Mexico and is found in association with *B. aureocookae*, to which it is closest in appearance and with which it might easily be confused. The following description should serve to separate it not only from *aureocookae*, but its congeners as well.

♂. *Length:* 7.5–9.0 mm. Similar in appearance to *aureocookae* except for the following: vertex intermixed black and yellow pilose; occiput without row of minute black hairs on upper portion directly posterior to eye margin; halter knob dark brown; femora entirely amber to yellow, devoid of any black ground color; hind femur with 8–10 black spines ventrally on apical $\frac{3}{4}$; abdominal tergites I–V dense orange pilose and tomentose; tergites VI–VII pale yellow to white pilose and tomentose, contrasting sharply with pile on tergites I–V. Genitalia (Fig. 27): in lateral view with basistylus linear, length ca. $4.5\times$ width, slightly clawed basally, apical mesal lobe large; dististylus long, length $3\times$ width, tapering to hooked apex; epiphallus broad basally, tapering to long, thin neck, dorsal process weak; tip of aedeagus truncate; basal apodeme sclerotized dark brown, rounded; epandrium subrhomboid with pointed anterior and posterior processes; cercus large, length ca. $2.5\times$ width.

♀. Unknown.

Holotype ♂ (BPBM 12,418), 4♂ paratypes, MEXICO: DURANGO: 8.5 km W of La Zarca, 24.IX.1981 (N.L. Evenhuis & G.S. Forbes); 1♂ paratype, same data as holotype except 22 km N of La Zarca. All in BPBM.

Etymology. This species is named for the cotton-looking caudal portions of abdominal tergum (i.e., tergites VI–VII) (Latin *gossyp*, “cotton” + Greek *orrh*, “tergum, rump”).

Remarks. At the time this species was collected only males were found; they were all hovering over their respective territories. Males left the territories only to feed at an orange-yellow composite that was found in association with this species and *aureocookae*. Though there were many other potentially suitable habitats in the vicinity (viz., dry washes with flowering plants and potential hymenopterous hosts), these 2 species were found only in association with the composite. The only other New World species of *Bombylius* that has a similar specificity to a flowering plant is *Bombylius*

(*Zephyrectes*) *anthophoroides* Evenhuis, a monolectic pollinator of the labiate pasture plant, *Trichostema lanceolatum* Bentham in California. Whether *aureocookae* or *gossyporrhus* are oligolectic or monolectic pollinators of this composite will have to await further study.

***Bombylius grandiosus* Evenhuis, new species**

Fig. 20, 28

Using the key to species in Hall & Evenhuis (1980), this species runs to *io* Williston. It differs by its much larger size (15 mm), presence of erect black pile on the front, and the presence of a middorsal longitudinal stripe of white tomentum on abdominal tergites I–II. This is by far the largest species in the *comanche* group, its size surpassed in Nearctic *Bombylius* only by *texanus* Painter, *validus* Loew, and a few large specimens of *anthophilus* Evenhuis and *major* Linnaeus.

♀. *Length*: 15.0 mm. *Head*: gray to cinereous, oral margin pinkish; front dense golden yellow tomentose, erect yellow pilose, erect black pile intermixed lateral to ocellar tubercle; face and oral margin sparse yellow pilose; ocellar tubercle with long, yellow hairs; occiput dense yellow pilose, yellow tomentum along posterior eye margin; gula white pilose; antennae (Fig. 28) with segments I and II yellowish orange; segment I long, yellow pilose, segment II 1.5 × longer than wide, short yellow pilose, segment III and stylar segments black, bare; antennal ratio: 2.5:1:3.2; palpus amber, short white pubescent; proboscis black. *Thorax*: mesonotum gray-brown, dense short golden pilose and tomentose; scutellum dull black, pile and tomentum as on mesonotum; pleura gray, yellow pilose above, white to pale yellow pilose below; halter stem amber, knob yellow; anterior thoracic spiracle with orange hairs; 3 well-developed orange prealar macrochaetae present. *Legs*: coxae and femora yellow, yellow pilose; hind femur with 9 black spines ventrally on apical ½; tibiae and tarsi brown, spines black; claws black; pulvilli ¼ length of claws. *Wing* (Fig. 20): tan proximal to arculus and humeral crossvein, otherwise hyaline; r-m crossvein at basal ⅓ of discal cell; squama yellow with fringe of yellow pile. *Abdomen*: tergites dull black, golden pilose and tomentose; tergites I and II with middorsal longitudinal golden to pale yellowish tomentose stripe; tergites III–VII with transverse golden tomentose crossbands on anterior portion of each segment; sternites gray, sparse yellow pilose; sternites VI–VII brownish black pilose. *Genitalia*: not dissected.

♂. Unknown.

Holotype ♀, MEXICO: MORELOS: 2 mi [3.2 km] W of Zacatepec, 28.VII.1967 (R.H. & E.M. Painter) (USNM).

Etymology. The name derives from the large size of this species (Latin *grandi*, “large, great”).

***Bombylius io* Williston**

Fig. 7, 29, 34

Bombylius io Williston, 1901: 285.

Painter & Painter (1962) examined the type series of *io* deposited in BMNH, designated a male as lectotype, and provided detailed descriptions of both sexes. Hall & Evenhuis (1980) also gave descriptions of both sexes based on a small series of specimens and comparisons with the descriptions in Painter & Painter (1962). I examined

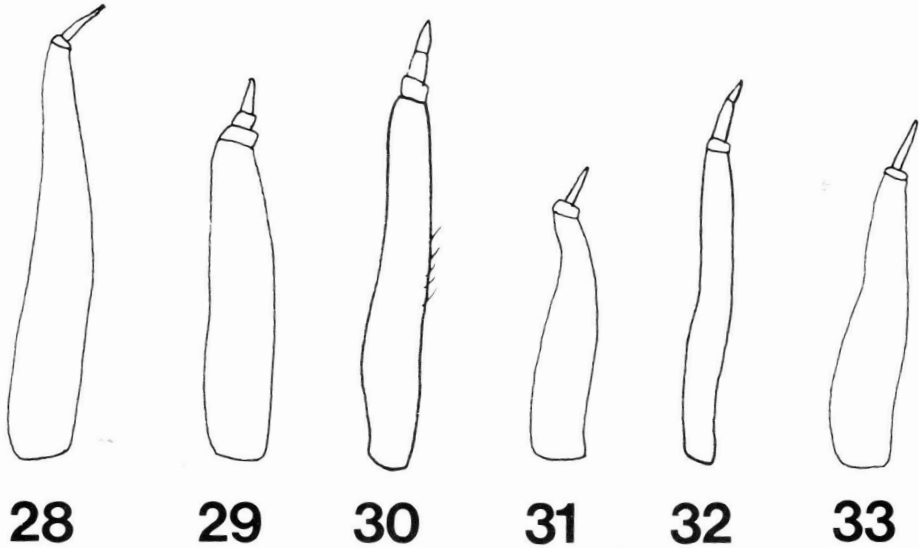


FIG. 28-33. *Bombylius* antennal segment III: 28, *B. grandiosus*; 29, *B. io*; 30, *B. quadricolor*; 31, *B. rhea*; 32, *B. willistoni*; 33, *B. zircon*.

the lectotype male of *io* for this study and found no appreciable differences in comparisons with previous descriptions. The 3rd antennal segment of the lectotype male is shown in Fig. 29. First descriptions of male and female genitalia are given below.

♂ genitalia (Fig. 34). In lateral view with basistylus linear-ovate, length ca. $3 \times$ width, dorsal margin straight, no basal claw evident, apical mesal lobe moderately large; dististylus broad, subtriangular in shape with hooked apex; epiphallus with small dorsal projection; neck of epiphallus short, length ca. $1.5 \times$ width, tapering to truncate apex; basal apodeme large, rounded; epandrium subquadrate, higher than wide, with pointed anterior and posterior processes; cercus very large, length ca. $2.5-3 \times$ width.

♀ genitalia (Fig. 7). Acanthophorites with 15 pairs of spines hooked apically; vaginal apodeme with lateral sclerite thin, sclerotized, medial sclerite wanting; spermathecal reservoir small, subspherical, sclerotized; apical spermathecal duct long, subequal in length to ejaculatory apparatus; ejaculatory apparatus with many canaliculi; apical valve cup-shaped; basal valve disc-shaped.

Hall & Evenhuis (1980) recorded *io* from only Guerrero in Mexico. The following new records extend the distribution to other southern states in Mexico.

Material examined. MEXICO. MORELOS: 6♂, 18 mi [30 km] SW of Cuautla, 26.X.1968 (R.H. & E.M. Painter); 1♀, 2 mi [3.2 km] W of Zacatepec, 3000 ft [914.4 m], 28.VII.1967 (A. Ortega). OAXACA: 1♀, Las Catarinas, Km 648, Hwy 190, 28.IX.1960 (C.H. Martin). All in USNM.

***Bombylius leberi* Evenhuis, new species**

Fig. 8, 21-22

This species runs to *comanche* Painter in the key to species of Hall & Evenhuis (1980). It can be separated from *comanche* by lack of brownish pile on the mid coxa,

lack of minute black hairs on the upper occiput in the male, and the dark brown antennal segments I and II in the female.

♂. *Length*: 5.5–7.5 mm. *Head*: grayish black; face and oral margin predominantly golden pilose, a few black hairs along gena; frontal triangle erect black pilose, golden tomentum lateral to antennal base; ocellar tubercle long black pilose; occiput yellow pilose and tomentose; gula pale yellow to white pilose; antennal segment I brown, orange basally, grayish pollinose, long brown pilose; segment II brown, short golden pilose; segment III and stylar segments black, bare; antennal ratio: 2:1:4; palpus brownish orange with short golden hairs laterally; proboscis black. *Thorax*: mesonotum and scutellum subshining black, dense yellow pilose; pleura dull gray, pale yellow pilose; macrochaetae weak; halter yellowish orange. *Legs*: coxae grayish brown, yellow pilose; femora yellowish orange, yellow pilose basally, yellow scales along ventral surface; hind femur with 7–8 black spines ventrally along apical $\frac{2}{3}$; tibiae yellowish orange, tarsi brown, spines black; claws black; pulvilli $\frac{1}{4}$ length of claw. *Wing* (Fig. 22): light brown at extreme base, hyaline beyond; basicosta golden, a few black hairs along anterior margin; r-m crossvein at basal $\frac{1}{3}$ of discal cell; squama brown with golden fringe of pile. *Abdomen*: tergites subshining black, segments I–III dense orangish yellow pilose, segments IV–VII fine white pilose and tomentose; sternites dull gray, yellow pilose and tomentose. *Genitalia*: not dissected.

♀. Similar to ♂ except eyes separated at vertex by $2\times$ width of ocellar tubercle; black hairs on head restricted to upper gena; palpus brownish black with long golden hairs laterally; wing vein M_1 curving upward at approximately 60° angle meeting R_5 (Fig. 21); squama white with golden fringe of pile; halter knob white; abdominal tergite I gray laterally; tergites IV–VII golden pilose and tomentose; sternites gray, sparse yellow pilose and tomentose. *Genitalia* (Fig. 8): acanthophorites with 15–16 pairs of spines hooked apically; vaginal apodeme with lateral sclerites thin, L-shaped, sclerotized, medial sclerite wanting; spermathecal reservoir subhemispherical, sclerotized brown; apical spermathecal duct short, length subequal to ejaculatory apparatus; ejaculatory apparatus without canaliculi; apical valve cup-shaped; basal valve flat, disc-shaped.

Holotype ♂, allotype, 1♀ paratype, MEXICO: ZACATECAS: 59 mi [95 km] NE of Zacatecas, 18.VIII.1968 (R.H. & E.M. Painter) (USNM).

Etymology. It gives me great pleasure to name this species in honor of my good friend Mr Keith K. Leber, who has joined me often in fanciful and imaginative discourse on contemplating the fate of the world.

***Bombylius marilynæ* Evenhuis, new species**

Fig. 35

This species is closest to *zapataensis*, n. sp., and can be separated from it by the lack of black hairs on the scutellum, the darker yellow to orange body pile, and its more southerly distribution in Mexico (Morelos) (*zapataensis* occurs in Texas).

♂. *Length*: 7.5 mm. *Head*: dark brown; face dark brown pilose, white pilose directly below antennae; oral margin dark brown pilose; front dark brown pilose, tuft of white tomentum lateral to antennal base; ocellar tubercle mixed dark brown and yellow pilose; occiput cinereous, dense yellow pilose and tomentose; gula gray, pale yellow pilose; antenna dark brown, segment I dark brown pilose, segment II short white pilose apically, segment III and stylar segments bare; antennal ratio: 2:1:4; palpus dark brown, long yellow hairs laterally; proboscis black. *Thorax*: dull black; mesonotum and scutellum yellow pilose and tomentose; pleura gray, pale yellow pilose; halter amber. *Legs*: coxae gray brown, pale yellow pilose; femora, tibiae, and tarsal segments I–II yellow, tarsal segments III–V dark brown; femora pale yellow pilose basally;

hind femur with 6 black spines ventrally on apical $\frac{3}{4}$; tibiae and tarsi with black spines; claws black; pulvilli vestigial. *Wing*: dark brown basally, color extending to arculus, rest of wing hyaline; veins brown; r-m crossvein at basal $\frac{1}{3}$ of discal cell; basicosta predominantly dark brown, a few yellow hairs mixed in; squama dark brown with fringe of yellow pile. *Abdomen*: dull black; tergites I–III yellow pilose and tomentose, tergites IV–VII white pilose and tomentose; a few black hairs on posterior margins of tergites II–VII; sternites gray-brown, pale yellow pilose and tomentose. *Genitalia* (Fig. 35): in lateral view with basistylus linear-ovate, slightly clawed basally, apical mesal lobe large, dorsal margin straight; dististylus long, thin, porpoise-shaped, with small hooked apex; epiphallus broad basally, tapering to aedeagal tip, dorsal projection wanting; aedeagal tip truncate; basal apodeme large, rounded, darkly sclerotized; epandrium subtrapezoidal, with small anterior and posterior processes, flared dorsally; cercus large, length ca. $2 \times$ width.

♀. Unknown.

Holotype ♂, MEXICO: MORELOS: Cañon de Lobos, 26.VIII.1976 (J. Butze). Paratype ♂, same data except G. Sampedro collector. Type and paratype in UNAM.

Etymology. This species is named in honor of my dear friend, Ms Marilyn L. Nicholson, in respect for her aloofness toward scientific dogma.

Bombylius neotropicus Evenhuis, new species

Fig. 9

This species runs to *B. pulcher* Hall & Evenhuis in their (1980) key to species. Males of *neotropicus* can be separated from *pulcher* by the lack of golden pile intermixed on the oral margin and by the dense black pile on sternites VI–VII. Females can be separated from those of *pulcher* by the lack of black hairs on the scutellum and abdomen and the sparser distribution of golden pile on the face and oral margin.

♂. *Length*: 6.0–8.0 mm. *Head*: black; face, front, oral margin, and ocellar tubercle black pilose; lowermost corner of gena and gula with white pile; occiput dense yellow pilose, upper portion of occiput with row of minute black hairs directly posterior to eye margin (these hairs often very inconspicuous and specimen must be turned in various directions before they become visible); antenna black; segments I and II with black hairs; segment III and stylar segments bare; antennal ratio: 2.5:1:4; palpus brown with short brown hairs laterally; proboscis black. *Thorax*: mesonotum and scutellum dull black, golden pilose; pleura gray, yellow pilose; postalar callus with well-developed orange macrochaetae; halter yellow. *Legs*: coxae grayish pink, yellow pilose; femora and tibiae yellow; femora yellow pilose basally; hind femur with 8–9 black spines ventrally on apical $\frac{3}{4}$; tarsi brown; claws black; pulvilli vestigial. *Wing*: smoky brown basally, color extending to R_1 and anterior and posterior crossveins; r-m crossvein at basal $\frac{1}{3}$ of discal cell; squama tan with fringe of golden pile. *Abdomen*: tergites dull black, dense golden yellow pilose; tergites II–III with long black hairs intermixed with shorter yellow pile; yellow tomentose middorsally on tergites VI–VII; sternites gray, yellow pilose and tomentose; sternites VI–VII dense black pilose, a few yellow hairs intermixed. *Genitalia*: not dissected.

♀. Similar to ♂ except eyes separated at vertex by $2 \times$ width of ocellar tubercle; face and front sparse yellow pilose, yellow tomentose; gena and oral margin with black hairs; ocellar tubercle intermixed yellow and black pilose; occiput yellow pilose and tomentose, without black hairs; dorsum of thorax and abdomen dense golden tomentose, yellowish golden pilose; abdomen without black hairs. *Genitalia* (Fig. 9): acanthophorites with 17–19 pairs of spines hooked apically; vaginal apodeme as in *aureocookae*; spermathecal reservoir subhemispherical, sclero-

tized; apical spermathecal duct short, length ca. $2 \times$ ejaculatory apparatus; ejaculatory apparatus without canaliculi; apical valve cup-shaped; basal valve disc-shaped, flat.

Holotype ♂, allotype, 6♀ paratypes, NICARAGUA: 28 mi [45 km] NE of Managua, 4.IX.1967 (R.H. & E.M. Painter). All in USNM.

Etymology. This species is named for its neotropical distribution.

Bombylius phlogmodes Evenhuis, new species

Fig. 10

This species runs to *io* Williston in the key to species of Hall & Evenhuis (1980). It can be separated from *io* by the following: antennal segment I with intermixed black and orange-yellow hairs, body pile and tomentum orange, and the apical sternites with black pile intermixed with golden pile.

♀. *Length:* 6.5 mm. *Head:* black, occiput and gula cinereous; face, front, oral margin, and ocellar tubercle dense orange pilose and tomentose; occiput orange pilose, orange tomentose along posterior margin of eye; gula yellow pilose; antennal segments I and II amber to orange, grayish pollinose in some specimens, intermixed yellow, orange, and black pilose on segment I, segment II short yellow pilose, segment III and stylar segments black, bare; antennal ratio: 2:1:3.5; palpus dark brown with dark brown hairs laterally. *Thorax:* mesonotum and scutellum dull black, dense orange pilose and tomentose; pleura grayish black, yellow pilose, orange pilose on mesopleuron; halter stem amber, knob whitish. *Legs:* coxae concolorous with pleura, apices orange, yellow pilose; femora, tibiae, and tarsal segments I–II orange, tarsal segments III–V black; femora yellow pilose basoventrally; hind femur with 5–6 black spines ventrally on apical $\frac{1}{2}$; claws black; pulvilli $\frac{1}{4}$ length of claws. *Wing:* as in *quirinus*, n. sp. *Abdomen:* tergites dull black, dense golden orange pilose and tomentose; sternites grayish black, sparse yellow pilose and tomentose; apical sternites with dense black pile intermixed with yellow pile. *Genitalia* (Fig. 10): acanthophorites with 14–15 pairs of spines hooked apically; vaginal apodeme as in *quirinus*, n. sp.; spermathecal reservoir with basal ridge; apical valve not flared, otherwise as in *quirinus*, n. sp.

♂. Unknown.

Holotype ♀, 6♀ paratypes, USA: TEXAS: 20 mi [32.2 km] SW of George West, 600 ft [183 m], 27.IV.1966 (R.H. & E.M. Painter). Other paratypes. TEXAS: 1♀, Brownwood, 13.VI. [no year] (R.H. Painter); 2♀, San Antonio, 16.V.1966 (F.C. Pratt); 1♀, Austin, 4.V.1922 (Painter); 2♀, 30 mi [48.3 km] NW of Zapata, 6.IV.1966 (Painter & Painter) (all in USNM); 1♀, San Antonio, NE Reserve, 26.IV.1972 (J. Powell) (UCB).

Etymology. This species is named for the striking orange color of the body pile (Greek *phlogmo*, “a flame” + Greek *odes*, “like”).

Bombylius pulcher Hall & Evenhuis

Bombylius pulcher Hall & Evenhuis, 1980: 81.

Hall & Evenhuis (1980) recorded this handsome species from Puebla and Chiapas states in Mexico. The following new state records may be added to its distribution.

Material examined. MEXICO. HIDALGO: 2♂, 10 mi [16.1 km] N of Ixmiquilpan, 5900 ft [1798.3 m], 6.X.1968 (R.H. & E.M. Painter). MICHOACAN: 1♀, 1 mi [1.6 km] E of Yurecuaro, VIII.1966, Grenados. All in USNM.

Bombylius quadricolor Evenhuis, **new species**

Fig. 11, 30, 36

This species is easily separated from the congeners by the combination of orange, yellow, white, and black pile on the abdominal tergum in addition to the characters given in the key below.

♂. *Length*: 6.5–10.0 mm. *Head*: gray-black; face and oral margin predominantly pale yellow pilose, black along gena immediately below antenna; front erect black pilose, pale yellow tuft of tomentum lateral to antennal base; ocellar tubercle long black pilose; occiput pale yellow pilose and tomentose; gula and lower gena white pilose; antenna (Fig. 30) black, segment I intermixed black and yellow pilose; segment II short black pilose dorsally; segment III and stylar segments black, with 3–4 hairs dorsally; antennal ratio: 2:1:5; palpus black with long golden hairs laterally and apically; proboscis black. *Thorax*: mesonotum and scutellum dull black, dense yellow pilose, sparse yellow tomentose, a few short erect black hairs on disc of notum; pleura gray, pale yellow to white pilose; halter stem amber, knob dark brown. *Legs*: coxae brownish black, white pilose; femora dark brown basally, orange apically, with white to yellow scales, white pilose basally; hind femur with 10–11 black spines ventrally on apical $\frac{3}{4}$; tibiae orange, brown apically; tarsi brown, spines black; claws black; pulvilli $\frac{1}{4}$ length of claws. *Wing*: dark brown basally, color extending to arculus, smoky brown beyond to R₁ and anterior and posterior crossveins; veins dark brown; squama dark brown with fringe of golden pile. *Abdomen*: tergites dull black, sparse yellow pilose and tomentose on dorsum; tergite I pale yellow pilose dorsolaterally and laterally; tergites II–III dense orange pilose laterally; tergites III–IV black pilose posterolaterally; tergites IV–VII white pilose laterally; tergites V–VII with long black hairs dorsally; sternites grayish black, sparse yellow pilose and tomentose; apex and genitalia with black hairs. *Genitalia* (Fig. 36): in lateral view with basistylus linear-ovate, clawed basally, mesal apical lobe large; dististylus porpoise-shaped, hooked apically; epiphallus broad basally, tapering to neck, small dorsal bump near base of neck of epiphallus; tip of aedeagus truncate, length of neck ca. 2 × width; basal apodeme sclerotized black, rounded; epandrium subrectangular with pointed anterior and posterior processes; cercus large, length ca. 2 × width.

♀. As in ♂ except eyes separated above by 2 × width of ocellar tubercle; front mixed golden and black pilose; dense golden tomentose; ocellar tubercle mixed orange and black pilose; oral margin with sparse black hairs intermixed with dense yellow pile; dorsum of thorax and abdomen dense golden pilose and tomentose; abdominal tergite I golden pilose; tergites II–VII orange pilose dorsolaterally and laterally; black hairs on dorsum of tergites II–VII; stripe of golden tomentum on middorsum of tergites II–VII; sternites VI–VII with dense black pile, yellow pile intermixed. *Genitalia* (Fig. 11): acanthophorites with 14–15 pairs of spines hooked apically; spermathecal reservoir cone-shaped; sclerotized brown; apical spermathecal duct recessed in base of spermathecal reservoir, length 6 × that of ejaculatory apparatus; ejaculatory apparatus extremely short, without canaliculi; apical valve large, cup-shaped; basal valve disc-shaped.

Holotype ♀, MEXICO: MORELOS: 20 km E of Cuernavaca, Lobo Cyn, 1310 m, 4.XI.1976 (E.M. Fisher) (BPBM 12,419). Allotype, MEXICO: MEXICO: Chapingo, 7400 ft [2255.5 m], 2.X.1968 (R.H. & E.M. Painter) (USNM). Paratypes: MEXICO: DISTRITO FEDERAL: 1♀, Jardín Botánico Ext., 10.X.1970 on *Lopezia racemosa* (C. Buetelspacher B.); 2♀, Pedregal de San Angel, 26.IX.1970 (Buetelspacher B.) (UNAM). MEXICO: 11♂♀, Chapingo, 7400 ft [2255.5 m], 19.IX–14.X.1968 (Painter & Painter); 1♂, 8 mi [12.8 km] E of Texcoco, 9.X.1968 (Painter & Painter) (USNM). MICHOACAN: 1♂, Zinapécuaro, 29.IX.1979 (J. Gutierrez) (UNAM). MORELOS: 33♂♀, topotypic, 27–29.IX.1968 (Painter & Painter) (USNM); 1♀, Km 58, Carretera Xochimilco, Oaxtepec, 8.XII.1978 (J. Butze & G. Sampedro); 2♀, Km 57, Carretera Mex.,

Cuernavaca, 15.IX.1978 (Butze, A. Gonzalez) (UNAM). PUEBLA: 2♂, 30–32 mi [48.2–51.5 km] SW of Tehuacan, 12,20.X.1968 (Painter & Painter) (USNM). TAMAULIPAS: 1♂, 15 mi [24 km] SW of Cd. Victoria, 5000 ft [1524 m], 18.IX.1976 (UCB).

Etymology. This species is named for the multicolored abdominal pile, Latin *quad*, "4," + "color."

***Bombylius quirinus* Evenhuis, new species**

Fig. 12, 37

This species runs to *frommerorum* Hall & Evenhuis in Hall & Evenhuis' (1980) key to species. The male differs from *frommerorum* by the all black pilose ocellar tubercle, the intermixed black and yellow pile on the face and oral margin, the yellow frontal tomentum lateral to antennal bases, antennal segment I being intermixed black and yellow pilose, and the dense golden yellow body pile. The female differs from *frommerorum* by the presence of yellow and black pile on antennal segment I and by the female genitalia.

♂. *Length:* 6.0–6.7 mm. *Head:* front, ocellar tubercle, face, and oral margin grayish black; front erect black pilose, tuft of yellow tomentum lateral to antennal base; face and oral margin dense yellow pilose, a few black hairs intermixed below antennae and on gena; ocellar tubercle long black pilose; occiput and gula cinereous; occiput golden yellow pilose, yellow tomentose posterior to eye margin; gula white pilose; antenna black; segment I with intermixed yellow and black pile 2× length of that segment; segment II length subequal to width, short black hairs apically, length equal to that segment; segment III and stylar segments bare; antennal ratio: 2:1:4; palpus dark brown with long black hairs laterally. *Thorax:* mesonotum and scutellum dull black, dense yellow pilose; pleura grayish black, dense yellow pilose; halter stem testaceous, knob cream-colored; anterior thoracic spiracle with dark brown hairs; prealar macrochaetae orange, weak. *Legs:* coxae concolorous with pleura; fore and mid femora amber, dark brown basoventrally with yellow hair and scales; hind femur amber with 7 black spines ventrally on apical ½; tibiae and tarsal segments I–II amber, segments III–V dark brown; claws black; pulvilli ¼ length of claws. *Wing:* smoky brown basally, color extending distally to base of praefurca (vein Rs), anterior and posterior crossveins; veins brown; r-m crossvein at basal ¼ of discal cell; squama amber with fringe of long yellow pile. *Abdomen:* tergites dull black, dense yellow pilose, sparsely yellow tomentose; sternites grayish-black, sparse yellow pilose and tomentose. *Genitalia* (Fig. 37): in lateral view with basistylus linear-ovate, length ca. 2.5× greatest width, clawed basally, apical mesal lobe large, ¼ length of basistylus; dististylus large, subtriangular with blunt subapical bulge on anterior surface, tapering to hooked apex; epiphallus broad basally, tapering to neck; neck of epiphallus straight to truncate aedeagal tip, length ca. 2.5× width; basal apodeme large, rounded; epandrium subquadrate with pointed anterior process, posterior process short, subspatulate; cercus large, exerted.

♀. Similar to ♂ except eyes separated above by 3× width of ocellar tubercle; black hairs sparsely distributed on head, restricted to ocellar tubercle and front, rarely on face; head densely golden tomentose; front with golden tuft of tomentum lateral to antennal base; antenna with all yellow pile; wing entirely hyaline; abdominal tomentum dense, yellow. *Genitalia* (Fig. 12): acanthophorites with 13–14 pairs of spines hooked apically; vaginal apodeme with lateral sclerites thin, medial sclerites fused into one, all sclerotized; spermathecal reservoir subhemispherical, recessed basally, sclerotized brown; apical spermathecal duct subequal in length to ejaculatory apparatus, membranous; ejaculatory apparatus short, without canaliculi; apical valve large, flared, cup-shaped; basal valve disc-shaped.

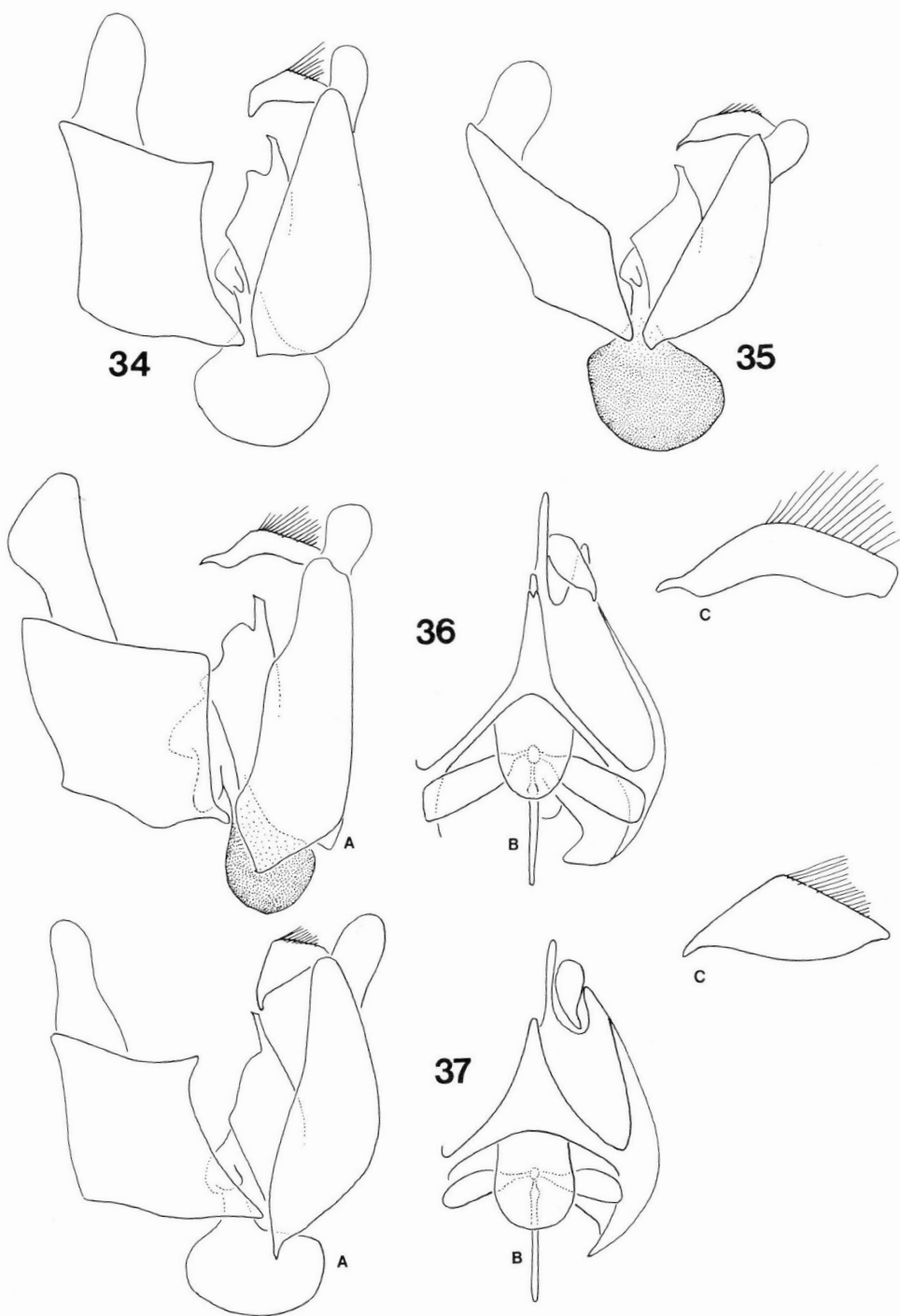


FIG. 34-37. *Bombylius* ♂ genitalia. 34, *B. io*, lateral view. 35, *B. marilynae*, lateral view. 36, *B. quadricolor*: A, lateral view; B, dorsal view; C, dististylus, lateral view. 37, *B. quirinus*: A, lateral view; B, dorsal view; C, dististylus, lateral view.

Holotype ♂, allotype, USA: TEXAS: 11 mi [17.7 km] N of Pearsall, 400 ft [122 m], 5.IV.1966 (R.H. & E.M. Painter). Paratypes: USA: TEXAS: 28♂♀, 11–18 mi [17.7–29 km] N of Pearsall, 400 ft [122 m], 5.IV.1966 (Painter & Painter); 1♀, 30 mi [48.2 km] NW of Zapata, 6.IV.1966 (Painter & Painter). All in USNM.

Etymology. The name is from the Latin *Quirinus*, the name given to Mars in time of war.

***Bombylius reginae* Evenhuis, new species**

This species is only known from the unique female holotype. It is closest in appearance to *zapataensis*, n. sp., and can be separated from it by the lack of erect short black hairs on the disc of the mesonotum and by its more southerly distribution (El Salvador) (*zapataensis* is known only from Texas).

♀. *Length:* 7.5 mm. *Head:* face and oral margin tan, golden pilose; front and ocellar tubercle grayish brown, eyes separated at vertex by 2× width of ocellar tubercle; front yellow and brown pilose, short dense golden tomentose; ocellar tubercle golden pilose; occiput and gula cinereous; occiput dense yellow to golden pilose and tomentose; gula sparse pale yellow pilose, pale yellow pollinose; antennal segments I and II yellowish orange; segment I intermixed yellow and brown pilose; segment II short yellow pilose; segment III and stylar segments dark brown, bare; antennal ratio: 2:1:3.5; palpus amber; proboscis black above, brown below. *Thorax:* mesonotum and scutellum dark reddish brown, gray pollinose laterally, pale yellow to golden pilose and tomentose; pleura grayish brown pollinose, pale yellow pilose; halter stem cream-colored, knob yellow. *Legs:* coxae, femora, tibiae and tarsal segments I–II yellow; femora with brown spot at apex; tarsal segments III–V dark brown, spines brown; coxae and femora pale yellow pilose; hind femur with 5–7 spines ventrally on apical ½; claws black; pulvilli vestigial. *Wing:* hyaline; veins light brown; discal cell punctiform apically; r-m crossvein at middle of discal cell; squama white with fringe of golden yellow pile; basicostal comb intermixed golden and black pilose. *Abdomen:* tergites brown, golden pilose, and tomentose; a few long black hairs on posterior margins of tergites II–VII; sternites brown, dense yellow pilose, and tomentose; last sternite dense brown pilose. *Genitalia:* not dissected.

♂. Not known.

Holotype ♀, EL SALVADOR: 13 mi [21 km] E of La Libertad, 13.VII.1965 (A. Raske & C. Slobodchikoff) (UCB).

Etymology. The name is from the Latin *Regina*, “queen.”

***Bombylius rhea* Evenhuis, new species**

Fig. 31

This species is similar to *neotropicus*, n. sp., but can be separated from *neotropicus* by the weakly developed macrochaetae on the postalar callus and denser pile of the oral margin.

♀. *Length:* 6.5 mm. *Head:* gray; face and oral margin dense golden pilose, sparse black pilose; front dense golden tomentose, intermixed yellow and black pilose; eyes separated above by 2× width of ocellar tubercle; ocellar tubercle predominantly black pilose, a few yellow hairs intermixed; occiput dense yellow pilose and tomentose; gula pale yellow pilose; antennal segments I and II gray, segment III and stylar segments black; segment I intermixed black and

yellow pilose; segment II short yellow pilose; segment III (Fig. 31) bare; antennal ratio: 2.5:1:3.5; palpus black with yellow hairs laterally; proboscis black. *Thorax*: mesonotum and scutellum dull black, dense yellow pilose and tomentose; pleura gray, yellow pilose; halter stem amber, knob white. *Legs*: coxae grayish pink, yellow pilose; femora amber, yellow pilose basally; hind femur with 5–6 black spines ventrally on apical $\frac{2}{3}$; tibiae amber; tarsi brown; claws black; pulvilli vestigial. *Wing*: hyaline; veins brown; r-m crossvein at basal $\frac{1}{3}$ of discal cell; squama tan with fringe of yellow pile. *Abdomen*: tergites dull grayish black, dense yellow pilose and tomentose, black hairs on posterior margins of tergites II–VII; sternites gray, yellow pilose, and tomentose, sparse black pilose on sternites VI–VII. *Genitalia*: not dissected.

♂. Unknown.

Holotype ♀, MEXICO: ZACATECAS: 59 mi [95 km] NE of Zacatecas, 6400 ft [1951 m], 18.VIII.1968 (R.H. & E.M. Painter) (USNM).

Etymology. This name is from the Greek *Rhea*, "mother of the gods."

***Bombylius sylphae* Evenhuis, new species**

Fig. 13

This species is one of the smallest of the *comanche* group (5.5–6.0 mm). In the key to species in Hall & Evenhuis (1980), this species runs to *frommerorum* Hall & Evenhuis. It can be separated from *frommerorum* by the presence of black hairs on the gena, the short brown pubescence on the palpus, the coxae, which are grayish basally, amber apically, and the hind femur with only 3 strong black spines ventrally.

♀. *Length*: 5.5–6.0 mm. *Head*: gray to cinereous; front erect yellow pilose, dense golden tomentose; eyes separated at vertex by $2.5\times$ width of ocellar tubercle; face and oral margin yellow pilose, gena with intermixed yellow and black hairs; ocellar tubercle with long, yellow hair; occiput yellow pilose and tomentose; gula pale yellow pilose; antennal segments I and II gray, yellow pilose; segment III and stylar segments black, bare; antennal ratio: 2.5:1:5; palpus brown with short brown pubescence; proboscis black. *Thorax*: mesonotum and scutellum dull black, dense short golden yellow pilose and tomentose; pleura grayish black, yellow pilose above, pale yellow pilose below; halter amber; anterior thoracic spiracle with orange hairs; prealar macrochaetae weak, orange. *Legs*: coxae concolorous with pleura on proximal $\frac{1}{2}$, otherwise amber, pale yellow pilose; femora, tibiae, and tarsal segment I yellow, tarsal segments II–V brown; femora pale yellow pilose basoventrally; hind femur with 3 spines ventrally on apical $\frac{1}{3}$; claws black; pulvilli $\frac{1}{4}$ length of claws. *Wing*: hyaline; veins brown; r-m crossvein at basal $\frac{1}{3}$ of discal cell; squama tan with fringe of yellow hairs. *Abdomen*: tergites dull black, dense golden yellow pilose, and tomentose; sternites gray, yellow pilose, and tomentose. *Genitalia* (Fig. 13): acanthophorites with 12–13 pairs of spines hooked apically; vaginal apodeme with lateral sclerites thin, medial sclerites fused, lightly sclerotized, color light brown; spermathecal reservoir subhemispherical, recessed slightly at base; apical spermathecal duct tapering from reservoir to ejaculatory apparatus, membranous; ejaculatory apparatus extremely short (0.08 mm); apical valve large, flared, cup-shaped; basal valve flared slightly, disc-shaped.

♂. Unknown.

Holotype ♀, 1♀ paratype, MEXICO: COAHUILA: 41 mi [66 km] N of Saltillo, 27.IX.1967 (R.H. & E.M. Painter) (USNM). 1♀ paratype, USA: ARIZONA: Pima Co: 2 mi [3.2 km] E of Continental, 4.IX.1968 (W.J. Hanson) (NLE).

Etymology. The name is from the Greek *Sylphs*, according to Plato, genii who lived in the air.

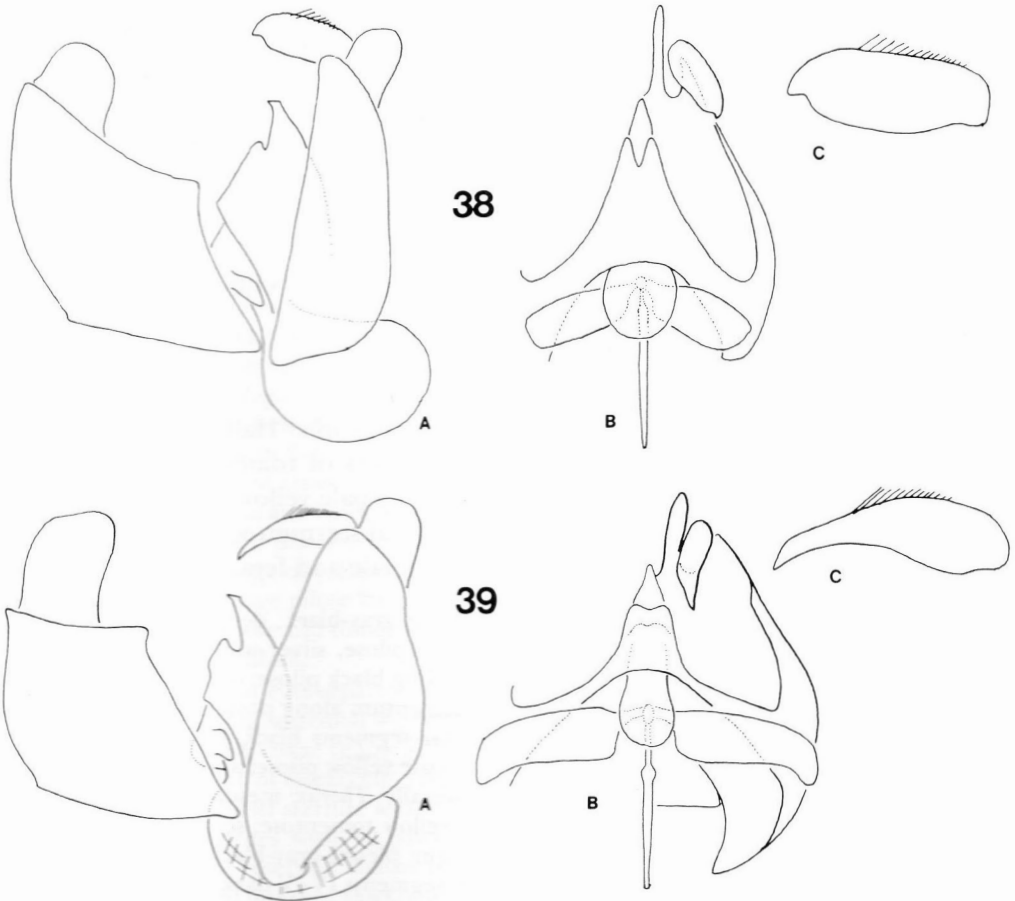


FIG. 38-39. *Bombylius* ♂ genitalia. 38, *B. willistoni*: A, lateral view; B, dorsal view; C, dististylus, lateral view. 39, *B. zapataensis*: A, lateral view; B, dorsal view; C, dististylus, lateral view.

***Bombylius willistoni* Evenhuis, new species**

Fig. 38

B. willistoni keys to *frommerorum* Hall & Evenhuis in the key in Hall & Evenhuis (1980). It is easily separated from *frommerorum* by the absence of yellowish to silvery tufts of tomentum lateral to the antennal bases in addition to the more southerly distribution.

♂. Length: 9.0 mm. Head: dark brown; face and front black pilose; black hair and tomentum lateral to antennal base; oral margin and ocellar tubercle predominantly black pilose, a few yellow hairs intermixed; occiput dense yellow pilose and tomentose; gula pale yellow pilose; antenna black, segments I-II with black hairs, segment III and stylar segments bare; antennal ratio: 2.2:1:6; palpus dark brown with black hairs laterally. Thorax: mesonotum and scutellum dull blackish brown, dense yellow pilose; scutellum sparse golden tomentose; pleura gray-black, yellow pilose; halter stem amber, knob white. Legs: coxae brown, yellow pilose; femora amber, yellow pilose basally, hind femur with 6-8 strong black spines ventrally on apical ¼; tibiae

amber; tarsi brown; claws black; pulvilli wanting. *Wing*: smoky brown as in *neotropicus*; veins dark brown; r-m crossvein at basal $\frac{1}{3}$ of discal cell; squama dark brown with fringe of golden pile. *Abdomen*: dull black; tergites dense golden orange pilose; tergites VI–VII yellow tomentose; sternum yellow pilose and tomentose. *Genitalia*: not dissected.

♀. Not known.

Holotype ♂, MEXICO: GUERRERO: 16 mi [25.6 km] S of Chilpancingo, 3100 ft (930 m), 2.XI.1968 (R.H. & E.M. Painter) (USNM). 1♂ paratype, MEXICO: CHIAPAS: 10 mi [16 km] E of Tapanatepec, 31.X.1964 (McDiramid) (LACM).

Etymology. This species is named in honor of the late S.W. Williston, who described many Diptera from southern Mexico.

Bombylius zapataensis Evenhuis, new species

Fig. 14, 39

This pale pilose species is similar in appearance to *pulcher* Hall & Evenhuis. It can be separated from it by the presence of whitish tufts of tomentum lateral to the antennal bases; the face and oral margin being dense pale yellow pilose; the fore and mid femora being dense white pilose; the abdominal sternum with dense black pile on the apical segments; and by differences in the male and female genitalia.

♂. *Length*: 7.5–8.0 mm. *Head*: face and oral margin gray-black, dense pale yellow pilose, gena black pilose; front yellow pollinose, erect black pilose, silver-white tuft of tomentum lateral to antennal base; ocellar tubercle gray-black, long black pilose; occiput and gula cinereous, pale yellow pilose; occiput with pale yellow tomentum along posterior eye margin; antennal segments I and II tan, segment III and stylar segments black, bare; segment I with intermixed black and yellow hairs; segment II short pale yellow pilose; antennal ratio: 2:1:5.5; palpus orange basally, black apically, black hairs laterally. *Thorax*: mesonotum and scutellum dull black; mesonotum dense yellow pilose, sparse yellow tomentose; scutellum yellow pilose and tomentose, a few black hairs on posterior margin; pleura gray-black, pale yellow pilose; halter stem amber, knob whitish. *Legs*: amber, tarsal segments IV–V dark brown; fore and mid femora dense, white pilose ventrally; claws black; pulvilli $\frac{1}{2}$ length of claws. *Wing*: as in *quirinus*; r-m crossvein almost at middle of discal cell; anal cell open; squama amber with fringe of long, pale yellow hairs. *Abdomen*: tergites dull black, dense, pale yellow pilose and tomentose, sparse black pilose on posterior margins of segments II–VII; sternites gray-black, pale yellow pilose; sternites IV–VII black pilose on lateral margins. *Genitalia* (Fig. 39) in lateral view with basistylus subovate, clawed basally; dististylus length ca. $3 \times$ width, tapering to hooked apex; epiphallus broad basally, tapering to neck, dorsal surface with slight bulge; neck straight to truncate aedeagal tip; basal apodeme large, rounded; epandrium subquadrate with pronounced anterior and posterior processes; cerci large, exerted.

♀. Similar to ♂ except eyes separated by ca. $2.5 \times$ width of ocellar tubercle; face and front intermixed black and yellow pilose, dense, golden tomentose; antennal segments I and II yellow, intermixed yellow and black pilose; genitalia (Fig. 14) with acanthophorites with 7–9 pairs of spines hooked apically; vaginal apodeme as in *quirinus*; spermathecal reservoir obovate-spherical, sclerotized; apical spermathecal duct long, thin, length $2.5 \times$ ejaculatory apparatus; apical valve large, cup-shaped; basal valve disc-shaped.

Holotype ♂, USA: TEXAS: 30 mi [48 km] NW of Zapata, 150 ft [45 m] 6.IV.1966 (R.H. & E.M. Painter). Allotype, USA: TEXAS: 18 mi [29 km] NE of Pearsall, 5.IV.1966. Paratypes: 3♂, topotypic collected with the holotype; ARIZONA: 1♂, Ajo, 26.IV.1935 (F.H. Parker). All in USNM.

Bombylius zircon Evenhuis, **new species**

Fig. 15, 23, 33

This species is similar to *pulcher* Hall & Evenhuis but is easily distinguished by the lack of black hairs on the dorsum of the abdomen. The male can be further distinguished from other species in this group by the dark coxal pile.

♂. *Length*: 9.0–10.5 mm. *Head*: dark brown, sparse erect black pilose; occiput and gula grayish white; occiput yellow pilose, yellow tomentose along posterior eye margin; gula pale yellow pilose; antenna black; segment I long, black pilose, length of pile 2× that of segment; segment II short, black pilose, length subequal to that of segment; segment III (Fig. 33) and stylar segments bare; antennal ratio: 2.3:1:4.8; palpus black with black hairs. *Thorax*: mesonotum and scutellum dull black, dirty yellow pilose, tomentum wanting; pleura gray, yellow pilose; halter stem yellow, knob yellowish white; anterior thoracic spiracle with brown hairs; macrochaetae orange, weak. *Legs*: coxae gray; mid and hind coxae with dark brown pile, otherwise all coxae yellow pilose; femora, tibiae and tarsal segments I–II amber; femora brown pilose ventrally; hind femur with 8–9 black spines ventroapically; tarsal segments III–V black; claws black; pulvilli 1/3 length of claws. *Wing* (Fig. 23): dark brown basally, color extending to prae-furca, posterior crossvein and bases of anal and axillary cells, rest of wing hyaline; r-m crossvein at basal 1/3 of discal cell; discal cell pointed apically, without crossvein apically closing cell; squama brown with fringe of yellow pile. *Abdomen*: gray-black; tergites with long, fine, yellow pile, tergites II–III orange pilose laterally; tergites VI–VII sparse, yellow tomentose dorsally; sternites pale yellow pilose and tomentose. *Genitalia*: not dissected; basistylus with apical mesal lobe large, sclerotized, black.

♀. Similar to ♂ except eyes separated at vertex by 2× width of ocellar tubercle; head white pilose, black pile wanting; antennal segments I–II amber, white pilose; body pile and tomentum golden, denser than in ♂; coxae yellow pilose; halter amber; macrochaetae well developed; wing hyaline; apical crossvein of discal cell 1/2 length of r-m crossvein; abdominal tergites I–V orange pilose laterally; apicalmost sternite with intermixed dark brown and pale yellow pile. *Genitalia* (Fig. 15): acanthophorites with 12 pairs of spines hooked apically; vaginal apodeme as in *quirinus*; spermathecal reservoir similar to *zapataensis*, but with more pronounced basal ridge and double-chambered interior, thickly sclerotized brown; apical spermathecal duct 3× length of reservoir, membranous; ejection apparatus long, subequal in length to apical duct, with canaliculi; apical valve flared, large, cup-shaped; basal valve flat, disc-shaped.

Holotype ♂, allotype, 1♀ paratype, MEXICO: TAMAULIPAS: 6 mi [9.6 km] S of Antiguo Morelos, 1000 ft [300 m], 21.IV.1966 (R.H. & E.M. Painter) (USNM). Other paratypes: MEXICO: VERACRUZ: 1♀, Rio Calabozo, 12.XI.1974 (J. Butze) (UNAM). USA: TEXAS: 1♂, Austin (A.L. Melander Collection) (USNM).

Etymology. The name is from the Persian *Zirco*, “gold-colored.”

KEY TO SPECIES OF THE *Bombylius comanche* GROUP

- 1. At least some abdominal tergites with black hairs; these hairs may be restricted to lateral margins (if ♀ devoid of black hairs and from Nicaragua, see couplet 19) . . . 2
- Abdominal tergum completely devoid of black hairs 20
- 2. Anal cell open at wing margin 3
- Anal cell closed at wing margin **clio**
- 3. Male 4
- Female 12

4. Wing tinted with yellow to brown basally, tinting usually extending to end of vein R_1 5
 Wing completely hyaline, or at most tinted light yellow at extreme base, tinting never extending to end of vein R_1 **flavipilosus**
5. Upper occiput with row of minute black hairs immediately posterior to eye margin (often these hairs inconspicuous and specimen must be turned in various directions until they become evident against background of pale-colored pile) 6
 Upper occiput devoid of black hairs 9
6. Humeral callus with black hairs mixed in with yellow pile; labrum orange to amber ... (Baja California Sur) **boharti, n. sp.**
 Humeral callus yellow to golden pilose, devoid of black pile; labrum black 7
7. Black hairs on sternites restricted to segments VI–VII 8
 Black hairs on sternites present on segments IV–VII **fisheri, n. sp.**
8. Oral margin densely black pilose; face below antennae and inner oral margin golden pilose; sternites VI–VII sparsely black pilose, dense yellow pilose and tomentose **pulcher**
 Oral margin sparsely pilose; face below antennae and inner oral margin bare or with few golden hairs mixed in with black pile; sternites VI–VII densely black pilose, few yellow hairs or tomentum intermixed **neotropicus, n. sp.**
9. Femora orangish to yellowish in color; halter knob white; color of body pile yellow to orange 10
 Femora dark brown; halter knob dark brown; body pile generally golden yellow 11
10. Scutellum with black hairs; body pile pale yellow ... (Texas) **zapataensis, n. sp.**
 Scutellum without black hairs; body pile yellow to orange ... (Morelos) **marilynae, n. sp.**
11. Tergites II–III dense orange pilose laterally; abdominal tergum with yellow tomentum **quadricolor, n. sp.**
 Tergites II–III yellow pilose; abdominal tergum with silvery white tomentum **c-album, n. sp.**
12. Femora and halter knob dark brown 13
 Femora yellow to orange; halter knob white to dark orange (brownish in *fisheri*, n. sp.) 14
13. Third antennal segment with 2–3 hairs on dorsoapical surface; tergites IV–VII golden pilose laterally; 1st antennal segment predominantly golden pilose **quadricolor, n. sp.**
 Third antennal segment without preapical hairs; tergites IV–VII white pilose laterally; 1st antennal segment predominantly black pilose **c-album, n. sp.**
14. Abdominal tergum with middorsal stripe of white tomentum; halter knob dark orange **fisheri, n. sp.**
 Abdominal tergum without longitudinal stripe of white tomentum; halter knob white to yellow, never orange 15
15. Antennal segments I and II dark brown to gray-black 17
 Antennal segments I and II yellowish orange 16
16. Mesonotum with erect black hairs intermixed with dense yellow pile ... (Texas) **zapataensis, n. sp.**
 Mesonotum devoid of black hairs, entirely yellow pilose ... (El Salvador) **reginae, n. sp.**

17. Scutellum without black hairs on posterior margin; abdominal tergites with black hairs sparsely distributed 18
 Scutellum with black hairs on posterior margin; posterior margins of tergites II-VII with denser black hairs **pulcher**
18. Mesonotum and scutellum with black hairs intermixed with dense yellow pile **flavipilosus**
 Mesonotum and scutellum devoid of black hairs, entirely yellow to golden pilose 19
19. Pile on oral margin sparse, short, restricted to upper portion; lowermost portion of gena with black hairs; sternites VI-VII yellow pilose, devoid of black hairs; post alar macrochaetae well developed, long . . . (Nicaragua) **neotropicus, n. sp.**
 Pile on oral margin dense, long; lowermost portion of gena with yellow hairs; sternites VI-VII with intermixed yellow and black hairs; post alar macrochaetae weak, inconspicuous . . . (Mexico) **rhea, n. sp.**
20. Male 21
 Female 29
21. Head with at least some black hairs 22
 Head yellow to golden pilose, completely devoid of black hairs **io**
22. Hind coxal pile completely yellowish pilose, devoid of brown to black hairs (brown pile on mid coxa in *comanche*) 23
 Mid and hind coxa with brown pile intermixed with yellow pile **zircon, n. sp.**
23. Antennal segment I black pilose 24
 Antennal segment I with at least some yellow pile intermixed with black pile 26
24. Front with tufts of white tomentum lateral to antennal bases; face and oral margin yellow pilose 25
 Front devoid of tomentum lateral to antennal bases; face and oral margin predominantly black pilose **willistoni, n. sp.**
25. Femora black basally, orange-yellow apically; occiput with row of minute black hairs posterior to eye margin **aureocookae, n. sp.**
 Femora entirely orange-yellow to yellow; occiput devoid of black hairs **frommerorum**
26. Occiput with row of black hairs posterior to eye margin (these hairs often minute and inconspicuous); halter knob yellowish 27
 Occiput devoid of black hairs; halter knob yellowish orange to brown 28
27. Front with tuft of yellowish tomentum lateral to antennal bases; mid coxa with yellowish pile **quirinus, n. sp.**
 Front without tuft of yellowish tomentum lateral to antennal bases; mid coxa with brown pile, a few yellow hairs may be intermixed **comanche**
28. Halter knob yellowish orange; antennal segment I predominantly black pilose, few yellow hairs intermixed **leberi, n. sp.**
 Halter knob brown; antennal segment I predominantly yellow pilose, few black hairs intermixed **gossyporrhus, n. sp.**
29. Antennal segment I black, brown, or gray 30
 Antennal segment I orange, yellow, or amber 37
30. Front with black hairs anterolaterad of ocellar tubercle; large species (18 mm in length) **grandiosus, n. sp.**
 Front without black hairs; smaller species than above 31
31. Apicalmost sternite with some brown pile 32
 Apicalmost sternite with yellow pile 33

32. Lateral margins of abdominal tergites II–III reddish in ground color; hind femur with black spines along entire length **zircon, n. sp.**
Abdominal tergum completely black in ground color; hind femur with black spines restricted to apical $\frac{1}{2}$ **aztec, n. sp.**
33. Facial pile with black hairs restricted to gena 36
Face devoid of black hairs, yellowish to orangish pilose 34
34. Body pile yellowish; tomentum lateral to antennal bases yellowish to whitish; ocellar tubercle without black pile 35
Body pile orangish; tomentum lateral to antennal bases orange; ocellar tubercle intermixed orange and black pilose **aureocookae, n. sp.**
35. Maxillary palpus dark brown to black; halter knob white **frommerorum**
Maxillary palpus orange to orange-brown; halter knob yellowish **quirinus, n. sp.**
36. Antennal segment I with yellow pile, no black hairs present; body pile generally orange **leberi, n. sp.**
Antennal segment I with at least some black hairs intermixed with yellow hairs; body pile yellowish to yellowish white **syphae, n. sp.**
37. Apicalmost sternite with some brown to black pile 38
Apicalmost sternite all yellow to white pilose 39
38. Maxillary palpus orange; tomentum lateral to antennal bases golden **io**
Maxillary palpus dark brown; tomentum lateral to antennal bases brilliant orange **phlogmodes, n. sp.**
39. Maxillary palpus orange; halter knob orange **io**
Maxillary palpus dark brown to black; halter knob white 40
40. Antennal segment I with short yellow tomentum in addition to hairs; hind femur with 7–10 black spines along entire length **comanche**
Antennal segment I without short yellow tomentum; hind femur with 4–5 spines along apical $\frac{1}{3}$ to $\frac{1}{2}$ **phlogmodes, n. sp.**

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