

# Arquivos de Zoologia

## STUDIES OF MYDIDAE (DIPTERA) SYSTEMATICS AND EVOLUTION IVa. THE GENUS *PHYLLOMYDAS* BIGOT (MYDINAE, PHYLLOMYDINI)

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### Genus *Phyllomydas* Bigot

*Phyllomydas* Bigot, 1880: xlvii. Type-species, *phyllocerus* Bigot (mon.). Refs. — Williston, 1896: 63; Aldrich, 1905: 252 (cat.); Williston, 1908: 191; Kertész, 1909: 45 (cat.); Johnson, 1926: 139, figs. 5 (hind leg), 6 (wing), 7-8 ( $\delta$  genitalia), 9-10 ( $\sigma$  terminalia) (considers as distinct from *Mydas*; cites the antennae, hind tibial spur, broad wings,  $\delta$  genitalia without spur and "cyathiform"  $\sigma$  terminalia, as distinctive characters); Curran, 1934: 164, figs. 1, 3 (head, dorsal,  $\delta$   $\sigma$ ), 2 ( $\sigma$  terminalia, ventral), 5 (hind leg), 7 (wing) (in key to genera separates from *Mydas* by small straight tibial spur, antennae different in the sexes and palpi absent); Hardy, 1943: 50 (gives same characters plus mesonotum with hairs on posterior margin, female without cirlet of spines at apex of abdomen, front broad and flat, and vertex only slightly concave; gives key to species, males); Curran, 1965: 360 (cat.); Papavero & Wilcox, 1968 (cat.); Cole, 1970: 184 (in key to genera and short descr.); Wilcox & Papavero, 1971: 105, figs. 3 (head, anterior), 4 (proboscis, lateral), 34-37 ( $\sigma$  antennae), 54 (bullae  $\delta$   $\sigma$ ), 61 ( $\sigma$  terminalia, dorsal), 122-124 ( $\delta$  genitalia), Map 5 (distribution) (descr. of genus, and *Mydas eupolis* Séguy (Mexico) added to *Phyllomydas*); Papavero & Wilcox, 1974a: 16 (listed in Mydinae); Papavero & Wilcox, 1974b: 56 (Tribe Phyllomydini), proposed with short descr., list of species, and *Mydas parvulus* Westwood (Florida) added to *Phyllomydas*. In the key to tribes (p. 36) the Phyllomydini are most closely related to the Mydini on these characters: "Stem of proboscis attached to apical one-half or more of labella, which extends downwards at about a 90° angle; oral margin opposite the lower eye margin", and is separated from the Mydini by these characters: "Facial gibbosity about one and one-half times as broad as high;  $\sigma$  tergite 9 wider apically than basally, fluted; apical processes of male gonopods double."

The characters used previously to separate *Phyllomydas* from *Mydas* are not all consistent. The short straight spur on the hind tibiae, shorter than the diameter of the hind metatarsi, applies to most of the species except *eupolis*, which has a long spur. The enlarged "spear-shaped" portion of the  $\delta$  antennae, as long as the slender part, applies only to part of the species, and the shorter "fusiform" club of the females is also found in some of the males. Palpi are present in both *Phyllomydas* and *Mydas* but are hidden on many specimens.

The genus ranges from Arizona and Florida, north to Colorado and Kansas, and south in Mexico to Coahuila, Durango, Jalisco, Nayarit, and Sonora. Curran

Anaheim, California, USA

(1965) and Papavero & Wilcox (1968) report the genus from California, and Walker (1854) from Georgia; I have not seen specimens from these two states.

The species divide into two groups based on the antennae of the males:

1. Male antennal segment 4 (the club) longer than antennal segment 3 and "spear-shaped" (Johnson, 1926). The basal 1/4 of the club is enlarged and the apical 3/4 slightly narrows to a rounded apex. Western species (Arizona to Texas, Colorado and Kansas, Coahuila and Sonora): *bruesii* Johnson, *currani* Hardy, *phyllocerus* Bigot, and *scitulus* (Williston).  
 Male antennal segment 4 shorter than segment 3 and "fusiform" (Johnson, 1926). The club widest at the middle and tapering to base and to a blunt apex. Eastern and Mexican species ..... 2
2. Spur on the hind tibiae shorter than the width of the hind metatarsi. Eastern species (Florida and Mississippi): *parvulus* (Westwood), *quercus*, sp. n., and *weemsi*, sp. n.  
 Spur on the hind tibiae longer than the width of the hind metatarsi. Mexican species (Durango, Jalisco and Nayarit): *eupolis* (Séguy).

Four of the species have color variation. Black species have a red form, red species have a black form, and a yellowish species has a brown form. These forms are indicated as variations in the keys and descriptions and other variants can be expected when more material is available.

Antennal segment 4 in most of the specimens is shrunken and distorted on drying, making accurate measurements difficult. The measurements in the key to species are averages of from 3-5 specimens, except *eupolis* (Séguy). Only measurements of antennal segments 3 and 4 are given in the keys, with 3 first, followed by 4. Measurements of the bullae and the hind femora give the length first, followed by their greatest width in parenthesis. All measurements are in mm.

#### KEY TO SPECIES

##### A. Males

1. Club of the antennae (segment 4) longer than segment 3 ..... 2  
 Club of the antennae shorter than segment 3 ..... 7
2. Tergites black or brown; mystax black or brown ..... 3  
 Tergites red or yellow, or brown with yellow margins ..... 4
3. Antennal club about 2.5 times length of segment 3 (1.29-3.46); bullae red, 0.97(0.18); hind femora 5.5 times as long as wide, 5.62(1.02); length, 18-20 mm (USA: Colorado, Kansas, New Mexico, Texas) ..... *phyllocerus* Bigot  
 Antennal club about 1.5 times length of segment 3 (2.16-2.82); bullae brown, 0.42(0.13); hind femora 5.4 times as long as wide, 5.20(0.97); length, 17-20 mm (USA: Arizona, New Mexico, Texas; Mexico: Coahuila) ..... *currani* Hardy (black variation)

4. Tergites brown, anterior and posterior margins yellow, hairs white; mystax white; antennal club about 2 times length of segment 3 (1.26-2.52); bullae brown, 0.39(0.13); hind femora 6.5 times as long as wide, 3.65(0.56); wings largely hyaline; length, 13-18 mm (USA: Arizona; Mexico: Sonora) ..... *scitulus* (Williston)  
Tergites all reddish or yellowish ..... 5
5. Tergites yellow, hairs yellow; mystax yellow; antennal club 1.6 times as long as segment 3 (1.60-2.56); bullae red, 0.45(0.21); hind femora 5.3 times as long as wide, 4.87(0.90); wings light brown; length, 12-20 mm (USA: Texas, Colorado) ..... *bruesii* Johnson  
Tergites red, hairs black or brown; mystax black or brown ..... 6
6. Club of antennae about 2.5 times length of segment 3; (see data above) ..... *phyllocerus* Bigot (red variation)  
Antennal club about 1.5 times length of segment 3; (see data above) ..... *currani* Hardy
7. Hind tibial spur longer than diameter of hind metatarsi; mystax yellow; antennal club about 3/4 length of segment 3 (2.65-1.95); legs largely yellowish-red, hind femora 4.7 times as long as wide, 5.14(1.11); tergite 1 black, 2-7 largely yellowish-red, bullae black, 0.79(0.14); wings hyaline, costal, subcostal, marginal and apex of posterior cell 1, brown; length, 19-29 mm (Mexico: Durango, Jalisco, Nayarit) ....  
..... *eupolis* (Séguy)  
Hind tibial spur shorter than diameter of hind metatarsi ..... 8
8. Tergites largely reddish, or yellow with brown; mystax variable ..... 9  
Tergites largely black or brown; mystax black ..... 10
9. Mystax black; antennal club about 4/5 length of segment 3 (2.43-2.08); tergites 2-5 reddish, others black or brown, hairs black; bullae 0.60(0.13); hind femora 4.3 times as long as wide, 5.41(1.25); wings dark brown; length, 14-23 mm (USA: Florida, Mississippi) ..... *weemsi*, sp. n.  
Mystax yellow; antennal club about 9/10 length of segment 3 (2.00-1.86); tergites brown, 2-7 margined on all sides with yellow, hairs yellow, bullae 0.55(0.21); hind femora 4.5 times as long as wide, 4.68(1.04); wings brown; length, 12-17 mm (USA: Florida, ?Georgia) ..... *parvulus* (Westwood)
10. Tergites brown or black, anterior and posterior margins of 2-7 brown or dark reddish, hairs brown; mystax brown; antennal club 0.88 length of segment 3 (2.19-1.93); hind femora 4.8 times as long as wide, 4.74(0.96); length, 13-16 mm (USA: Florida) .....  
..... *parvulus* (Westwood) (brown variation)  
Tergites black ..... 11

11. Antennal club about 3/4 length of segment 3 (2.66-1.98); bullae black, 0.45(0.16); hind femora 5.2 times as long as wide, 5.47(1.04); length, 15-19 mm (USA: Florida) ..... *quercus*, sp. n.  
 Antennal club about 4/5 length of segment 3 (2.38-2.06); bullae black, 0.55(0.16); hind femora 4.1 times as long as wide, 5.31(1.29); length, 18-23 mm (USA: Florida) .....  
 ..... *weemsi*, sp. n. (black variation)

## B. Females

1. *Mystax* yellow ..... 2  
*Mystax* black or brown ..... 4
2. Antennal segment 3 shorter than 4 (1.64-1.90); tergites 1-7 yellowish-red; hind femora slender, 6.7 times as long as wide, 8.94(1.34); length, 13-18 mm (USA: Arizona; Mexico: Sonora) ... *scitulus* (Williston)  
 Antennal segment 3 longer than 4; tergite 1 largely brown or black .... 3
3. Antennal segment 3 about 1.1 times length of 4 (1.84-1.65); tergites 2-7 brown, margined on all sides by yellow; hind femora slender, 6.3 times as long as wide, 7.92(1.26); length, 12-17 mm (USA: Florida, ?Georgia) ..... *parvulus* (Westwood)  
 Antennal segment 3 about 1.3 times length of 4 (3.16-2.42); tergites 2-7 reddish with small black posterior lateral spots; hind femora swollen, 4.9 times as long as wide, 7.21(1.47); length, 19-29 mm (Mexico: Durango, Jalisco, Nayarit) ..... *eupolis* (Séguy)
4. Tergites largely red ..... 5  
 Tergites largely black or brown ..... 6
5. Tergites 1-7 yellowish-red; antennal segment 3 shorter than 4 (1.79-2.20); hind femora 6.0 times as long as wide, 5.13(0.86); length, 18-20 mm (USA: Colorado, Kansas, New Mexico, Texas) .....  
 ..... *phyllocerus* Bigot (red variation)  
 Tergites 1-7 yellowish-red, broad sides of 7 brown; antennal segment 3 longer than 4 (2.45-2.08); hind femora 5.1 times as long as wide, 5.18(1.02), length, 14-23 mm (USA: Florida, Mississippi) .....  
 ..... *weemsi*, sp. n.
6. Tergites largely brown ..... 7  
 Tergites black ..... 10
7. Antennal segment 3 shorter than 4; see above ..... *phyllocerus* Bigot  
 Antennal segment 3 longer than 4 ..... 8
8. Hind femora 5.5 times as long as wide, 5.42(0.92); antennal segment 3 1.2 times as long as 4 (2.24-1.87); length, 12-20 mm (USA: Texas, ?Colorado) ..... *bruesii* Johnson  
 Hind femora 6 times as long as wide or more ..... 9

9. Hind femora 6.9 times as long as wide, 5.10(0.74); antennal segment 3 1.1 times as long as 4 (2.28-2.00); length, 17-20 mm (USA: Arizona, New Mexico, Texas; Mexico: Coahuila) . . . . *currani* Hardy  
 Hind femora 6.3 times as long as wide, 4.27(0.68); antennal segment 3 1.1 times length of 4 (1.91-1.72); length, 14-17 mm (USA: Florida) . . . . . *parvulus* (Westwood) (brown variation)
10. Antennal segment 3 1.3 times as long as 4 (2.41-1.80); hind femora slender, 6.6 times as long as wide, 2.41(1.80); length, 15-19 mm (USA: Florida) . . . . . *quercus*, sp. n.  
 Antennal segment 3 1.1 times as long as 4 (2.45-2.20); hind femora swollen, 4.7 times as long as wide, 5.84(1.24); length, 18-23 mm (USA: Florida) . . . . . *weemsi*, sp. n. (black variation)

#### *Phyllomydas bruesii* Johnson

*Phyllomydas bruesii* Johnson, 1926: 140. Type-locality: USA, Texas, Galveston. Types ♂ ♀, MCZ. Refs. — James, 1938: 64 (specimen reported from Colorado: foothills west of La Porte, Larimer Co., ♂, on sage brush; compared with type by J. Bequaert); Hardy, 1943: 51 (ref. and notes; spec. reported from Texas: Arkansas Co., Cameron Co., Galveston Co.); Curran, 1965: 360 (cat.; Texas); Papavero & Wilcox, 1968: 12 (cat.; Texas); Wilcox & Papavero, 1971: 104, figs. 3 (head, ant.), 4 (proboscis, lat.), 36 (♀ antenna), 61 (♀ terminalia, dorsal, with egg protruding), 122-124 (♂ genitalia, vent., dors., lat.) (figs. used to define genus); Papavero & Wilcox, 1974b: 56 (in list of spp.).

Male: Length, 16 mm. Head black, gibbosity and ocellar area shining; sides of face extending across below antennae, sides of frons below, and occiput, white pollinose. Mystax yellow, sparse short recumbent on middle, longer erect laterally; long erect yellowish on frons and vertex, short on occiput, longer below. Proboscis black, stem in part red. Face at lower eye margin 1.16, at antennae 2.00, at vertex 1.58, and one eye 0.58, in width. Antennal segments 1-2 reddish, short hairs yellow; 3-4 black; segments 0.45, 0.13, 1.45, 2.76(0.45), in length (width).

Mesonotum dull black; humeri, lateral margins, postalar calli and narrow dorsocentral stripes except anteriorly, dark reddish; hairs short sparse yellow. Scutellum dark red, hairs yellow. Postscutellum dull reddish. Pleura reddish with black spots on meso- and sternopleura, coxae yellow; hairs yellow, part black on coxae.

Tergites yellow, narrow lateral margins of 2-7 brown; hairs yellow, long erect on 1p, short recumbent on 2-7; bullae red, 0.42(0.18) in length (width). Sternites yellow; hairs sparse recumbent yellow, longer and numerous on 8. Genitalia yellowish-red, hypandrium and basistyli black apically; hairs yellow.

Femora yellowish-red, tibiae and tarsi reddish-brown. Hairs black, on fore and middle femora short sparse semierect, dense recumbent on tibiae and tarsi. Hairs on hind femora short dense semierect black, longer on dorsum with a few yellow and long yellow on basal 1/2 of posterior side; 17 brown tuberculate spines on venter; 4.21(0.84) in length (width). Hairs on hind tibiae short recumbent black, a few yellowish on posterior ventral side; spur 0.13 and bristle 0.21 in

length. Hind tarsi with dense recumbent hairs and short bristles, black; segments 0.58(0.19), 0.39, 0.29, 0.24, 0.42, in length (width). Claws red, tips black; pulvilli yellowish.

Halteres reddish-brown. Alulae yellow, black basally; short dense fringe yellow. Wings light brown, apex of posterior cell 1 and apical 1/2 of posterior 2 hyaline; veins light brown; posterior crossvein present.

Female: Length, 20 mm. Head brownish-black, gibbosity reddish-brown; hairs black. Face at lower eye margin 1.47, at antennae 2.62, at vertex 2.11, and one eye 1.00, in width. Antennae brown, 3 reddish, hairs black; segments 0.58, 0.16, 2.42, 2.00(0.16), in length (width).

Mesonotum brownish-black; humeri, lateral margins and postalar calli reddish; hairs black. Scutellum and postscutellum brown. Pleura and coxae brown; hairs short black.

Abdomen brownish-black; anterior and posterior margins of tergites reddish-brown; 2-5 sparsely punctate, more on 6, 7-8 rugose, 9 shining bare brown, 2.00 at apex and 1.05 at base in width; bullae brown, 0.69(0.21) in length (width). Hairs numerous short erect black on 1p, sparse recumbent on 2-5, short retrorse on 6-7, numerous long erect on 8 and base of 9; numerous brown on 10. Sternites shining brown; hairs very sparse recumbent black, numerous short erect on 8; sparsely punctate, more numerous apically.

Legs brownish-black; hairs short recumbent black; bristles black. Hind femora 6.50(1.11) in length (width); 27 brown tuberculate spines on venter; tibial spur 0.19 in length; tarsal segments 0.89(0.26), 0.47, 0.37, 0.32, 0.53, in length (width).

Halteres brownish-black; alulae brown, margin lighter, fringe brown.

One female has the ground color of the head red with only the ocellar area black.

Material examined. UNITED STATES. *Texas, Brazoria Co.*: Freeport, v. 1963 (L. Holden), ground, ♀, RHP; *Galveston Co.*: Beach, 7 mi. w. Galveston, vi.1956 (Evans & Matthews), pair (♂ 13 mm, ♀ 17 mm in length) and 2 ♀, CU; *Hidalgo Co.*: Donna, vi.1935 (Monk), ♀, USNM; *Kenedy Co.*: 49 mi. n. Raymondville, vi.1961 (Westcott), ♂, LACM; *Nueces Co.*: Padre Isl., vii.1967 (Gillaspay), ♂, 2 ♀, TAIU.

These records and the previous records except the one from Colorado, limit the species to Texas near or along the east coast of the Gulf of Mexico.

#### *Phyllomydas currani* Hardy

*Phyllomydas currani* Hardy, 1943: 51. Type-locality: USA, Arizona, Douglas. Type ♂, AMNH. Refs. — Curran, 1965: 360 (cat.; Arizona, New Mexico); Papavero & Wilcox, 1968: 12 (cat.; Arizona, New Mexico); Cole, 1970: 184 (note; Arizona, Baboquivari Mts. and Douglas; Texas: Carrizo Springs); Wilcox & Papavero, 1971: 52, fig. 37 (♀ antennae); Papavero & Wilcox, 1974b: 56 (list of spp.; USA: Arizona, New Mexico, Texas; Mexico: Coahuila).

Male: Length, 17 mm. Head black, gibbosity shining; sides of face extending below antennae, sides of frons and the occiput, whitish pollinose. Hairs black, dense curly on gibbosity as long as antennae 1, erect on frons and as long as antennae 1-2. Face at lower eye margin 1.16, at antennae 2.21, at vertex 1.47,

and one eye 0.79, in width. Antennae black; hairs black; segments 0.45, 0.11, 1.79, 2.70(0.66) in length (width).

Mesonotum dull black; hairs black, semierect on lateral margins and anteriorly in dorsocentral rows as long as antennae 1, shorter posteriorly. Indications of white pollen on lateral margins; dorsocentral stripes striate. Scutellum dull black, posterior margin dark red, short hairs black. Postscutellum dull black, thinly white pollinose. Pleura black, coxae dark red; hairs long black.

Tergites shining yellowish-red, 1a black and 1p brown basally, narrow lateral margins of 2-7 brown; bullae red, 0.42(0.13) in length (width); hairs dense curly black on 1p, sparse recumbent black on 2-7. Sternites similar with very sparse recumbent black hairs. Genitalia black, epandria dark red basally; hairs black.

Legs brownish-black, hairs and bristles black. Hind femora with erect hairs on dorsum as long as antennae 1; 24 tuberculate spines on venter; 4.73(0.79) in length (width). Spur on hind tibiae 0.26 in length. Hind tarsi 0.68(0.26), 0.47, 0.37, 0.24, 0.47, in length (width).

Halteres black; alulae black, fringe brown. Wings dark brown, lighter in posterior and axillary cells.

Female: Length, 20 mm. Head black, gibbosity and ocellar area shining; lower occiput white pollinose. Hairs short black, a short median tuft on oral margin, curly on sides. Face at lower eye margin 1.37, at antennae 2.11, at vertex 1.74, and one eye 0.79, in width. Antennal segments 0.47, 0.16, 2.24, 2.21 in length.

Mesonotum dull black; humeri, lateral margins and postalar calli brown; hairs short erect black on anterior lateral margins and anteriorly in dorsocentral rows.

Abdomen shining black, anterior and lateral margins of 2-7 indistinctly brown; finely punctate with very short inconspicuous black hairs, numerous erect on 1p and 8 transversely striate. Sternites shining black, margins brown; hairs black, very short sparse except on 8; smooth, 6-7 with a few shallow punctures and 8 transverse striate; 9 at apex 1.58 and at base 0.95 in width; 10 with short black hairs.

Legs brownish-black; hairs and bristles black. Hind femora 5.16(0.79) in length (width); hairs short semierect with a few long erect on dorsum; 16 tuberculate spines on venter. Tibial spur 0.16; hind metatarsi 0.68(0.26) in length (width).

Halteres black; alulae black, fringe short black. Wings brown, narrowly darker along veins; posterior crossvein present.

Material examined. UNITED STATES. *Arizona*, *Cochise Co.*: Chiricahua Mts., E. Turkey Crk., vi.1961 (Hanson), ♂, USU; Fairbank, v.1937 (Knull), ♂, OhSU; Portal, v.1966 (Lent), ♀, SWRS. *Texas*, *Brewster Co.*: Big Bend N.P., Pather Jct., 1067 m., v.1959 (McAlpine), ♂, CNC; do., The Basin, vi.1958 (Painter), ♂, RHP; *Dimmit Co.*: Carrizo Springs to Fowlerton Rd., vii.1921 (Duncan), ♂, CIS. MEXICO. *Cochuilla*: 1.6 km se. Cuarto Cienegas Basin, viii.1968 (Bigelow & Cazier), open sand area between *Prosopis*, along dusty dirt roads; moist dirt, ♂, ASU.

An all black or brown variation had the following measurements. Male: Length, 18 mm. Face at lower eye margin 1.16, at antennae 2.11, at vertex

1.58, and one eye 0.79, in width. Antennal segments 0.39, 0.15, 2.24, 2.63(0.42) in length (width). Bullae 0.42(0.13) in length (width). Hind femora 4.68(0.79) with 22 ventral spines, tibial spur 0.19, and tarsal segments 0.62(0.21), 0.39, 0.32, 0.24, 0.47, in length (width).

The female was black or brown except that tergites 2-7 and the sternites were reddish-brown; measurements as follows. Female: Length, 21 mm. Face at lower eye margin 1.37, at antennae 2.21, at vertex 1.74, and one eye 0.95, in width. Antennal segments 0.47, 0.13, 3.03, 2.16(0.50) in length (width). Bullae reddish-brown, 0.53(0.16) in length (width). Hind femora 5.53(0.84); tibial spur 0.21; and tarsal segments 0.79(0.26), 0.53, 0.39, 0.26, 0.61, in length (width).

Material examined. UNITED STATES. *Arizona, Cochise Co.*: Ashton Draw, 30.6 km e. Douglas, vi.1964 (Puckle, Mortenson & Cazier), ♂, ASU; 12.9 km ne. Portal, v.1956 (Statham), ♂, AMNH. *New Mexico, Hidalgo Co.*: 22.5 km n. Lordsburg, 1705 m, v.1961 (Scullen), ♂, OreSU. *Texas, Brewster Co.*: Big Bend N.P., Oak Spring, 1372 m, v.1959 (McAlpine & Mason), ♂ ♀, CNC.

Both of the females examined may be the normal females but females with yellowish-red abdomens as found in *phyllocerus* Bigot should be found. However the females of *bruesii* Johnson have the abdomen brown or black opposite a yellow abdomen in the males and the females of *scitulus* (Williston) have the abdomen all yellowish or reddish while in the males the abdomen is largely brown.

One specimen labelled "Fla (Collection C. V. Riley)", ♀, USNM, has been identified as this species. See note under *scitulus* (Williston).

#### *Phyllomydas eupolis* (Séguy)

*Myiias eupolis* Séguy, 1928: 142. Type-locality: Mexico, Jalisco, Huejotitan, 1700 m. Type ♀, MNHN. Ref. — Papavero & Wilcox, 1968: 8 (cat.; Mexico, Durango, Jalisco).

*Phyllomydas eupolis*; Wilcox & Papavero, 1971: 106 (note); Papavero & Wilcox, 1974b: 56 (in list of spp.; Mexico: Durango, Jalisco, Nayarit).

Male: Length, 19 mm. Head red, frons at middle broadly black; sides of face extending inward below antennae, narrow sides of frons, and occiput, yellowish pollinose. Hairs yellow, recumbent in mystax and short erect laterally, long dense erect to sides of antennae and above on frons. Proboscis and palpi brown. Face at lower eye margin 1.42, at antennae 2.37, at vertex 1.94, and one eye 0.95, in width. Antennae black, segment 1 basally and 4 apically reddish; hairs brown; segments 0.63, 0.16, 2.63, 1.95(0.58) in length (width).

Mesonotum black; humeri, lateral margins and postalar calli, yellowish-red; lateral margins and dorsocentral stripes anteriorly with a suggestion of white pollen; hairs short whitish. Scutellum dull black, arms brown; hairs on margin and arms yellowish. Postscutellum black, reddish laterally; yellowish pollinose and shallowly rugose. Pleura and coxae yellowish-red, hairs yellowish.

Tergite 1, dorsum of 2 and narrow lateral margins of 2-6 black; remainder yellowish-red; posterior margins of 2-6 yellowish; bullae black, 0.79(0.24) in



length (width). Tergite 1a yellowish pollinose, no hairs; 1p with long erect white hairs, 2-7 with short recumbent hairs, black dorsally, yellowish laterally. Sternites reddish, 2-6 with posterior margins white and a narrow brown to black subapical fascia; hairs sparse recumbent black on 2-7, yellowish on 8. Genitalia yellowish, hypandrium brownish and basistyli black; hairs yellowish.

Fore and middle femora yellowish-red, apex black, hairs short black; tibiae and tarsi black with dense long recumbent black hairs, the tibiae slightly wider than their femora. Hind femora reddish, 5.16(1.11) in length (width); hairs short sparse black, long sparse yellowish on dorsum; 17 black tuberculate spines on venter. Hind tibiae reddish, hairs short recumbent golden becoming black apically, spur 0.37 in length. Hind tarsi reddish, hairs and bristles black, segments 0.79(0.26), 0.39, 0.37, 0.32, 0.58, in length (width). Claws reddish, tips black; pulvilli brown.

Halteres brown. Alulae light brown, broad margin and fringe white. Costal, subcostal and marginal cells dark brown, submarginal cells except base of 1 lighter brown; remainder nearly hyaline; veins brown.

Female: Length, 29 mm. Head yellowish-red, ocellar area black; sides of face extending inward below antennae and narrow sides of frons, yellowish, and occiput yellowish-white, pollinose. Hairs yellow, quite dense recumbent on gibbosity and erect laterally, dense longer erect on frons and below on occiput. Proboscis brown. Face at lower eye margin 1.84, at antennae 3.16, at vertex 2.53, and one eye 1.21, in width. Antennae brown, base and narrow apex of segment 1 and a spot on 2 reddish; hairs below on 1 yellowish, above and on 2 black; segments 0.71, 0.21, 3.16, 2.42(0.84) in length (width).

Mesonotum yellowish-red; very broad central stripe and narrow intermediate stripes black; lateral margins narrowly white pollinose; hairs short erect white. Scutellum reddish, marginal hairs short erect yellowish, more numerous on arms. Postscutellum reddish, yellowish pollinose, shallowly rugose. Pleura and coxae yellowish-red, thinly yellowish pollinose; hairs yellowish.

Tergites reddish, dorsum of 1p, basal 1/3 of 2, and small lateral posterior spots on 2-7 black; basal 1/2 of 3-4 darker dorsally; narrow posterior margins of 2-5 at sides and on 6-7 extending nearly to middle, yellowish; bullae brown, 0.79(0.32) in length (width). Tergite 1a yellowish pollinose and bare of hairs, 1p with quite dense short erect yellowish hairs; short sparse recumbent on 2-3, sparse retrorse on 4-6, more numerous on 7, longer and numerous on 8-9; width of 9 at base 1.94, at apex 4.0; 10 with short whitish hairs. Sternites yellowish-red, posterior margins of 2-7 yellowish and 2-6 with a narrow subapical band black; hairs short sparse recumbent on 2-4, retrorse on 5-7, more numerous on 7, and longer dense nearly erect on 8; segments 7-8 and 6 laterally, shallowly rugose.

Fore and middle femora reddish, hairs short sparse black with a few longer yellowish above; their tibiae and tarsi black with numerous recumbent black hairs; tibiae not quite as wide as femora but appear wider with the dense hairs. Hind femora reddish, 7.21(1.47) in length (width); hairs short sparse yellowish, longer on dorsum; 18 red ventral spines. Tibiae reddish, hairs recumbent yellowish; spur 0.60 in length with 2 strong bristles at base (broken off). Tarsi reddish, 4-5 black; hairs long recumbent yellowish, black on dorsum of 4-5; segments 0.97(0.37), 0.58, 0.45, 0.37, 0.79, in length (width). Claws reddish, tips black; pulvilli brown.

Halteres brown. Alulae brown, broad margin white; dense fringe white. Costal, subcostal and marginal cells dark brown, submarginal cells lighter brown with a light streak basally on 1; remainder of wings nearly hyaline; veins brown, darker anteriorly.

Material examined. MEXICO. *Durango*: 6.4 km n. of Nombre de Dios, v.1962 (Stange), ♂, UCD: *Nayarit*: vic. Compostela, v.1933, ♀, USNM.

#### *Phyllomydas parvulus* (Westwood)

*Midas parvulus* Westwood, 1841: 53, pl. 13, fig. 6. Type-locality: "America Septentr.". Type ? Refs. — Walker, 1848: 228 (Florida), 1854: 360 (short descr.; Georgia); Gerstaecker, 1868: 102 (says Westwood's fig. is ♀; reports ♂ from N. America in BZM); Osten Sacken, 1878: 84 (Georgia, Florida); Williston, 1898: 54 (in key to spp.: "hind tibiae without spur"); Aldrich, 1905: 252 (Ga., Fla.); Kertész, 1909: 40 (cat.); Johnson, 1926: 138 (lists as a syn. of *M. maculiventris* Westwood (♀) from Florida; says: "The apparent absence of hind tibial spurs in the figure of *parvulus* is probably an error and should be disregarded, since this character is not mentioned in the description"); Curran, 1965: 359 (cat.; as syn. of *M. maculiventris* Westwood).

*Phyllomydas parvulus*: Papavero & Wilcox, 1974b: 56 (Fla.; type ♂, n° 15, OXF, examined and placed in *Phyllomydas*).

Male: Length, 16 mm. Gibbosity yellowish-red; face brown; frons and occiput reddish-brown; ocellar area black. Sides of face extending inward below antennae, spot at middle of gibbosity, narrow sides of frons on lower 1/2, and occiput, yellowish pollinose. Hairs yellow, short sparse in center of gibbosity and longer curved on sides; longer sparse erect otherwise. Proboscis reddish-brown. Face at lower eye margin 1.05, at antennae 1.89, at vertex 1.53, and one eye 0.79, in width. Antennae brown; short hairs yellow; segments 0.45, 0.13, 2.10, 1.89(0.53) in length (width).

Mesonotum yellowish-red; broad central stripe indistinctly divided and intermediate stripes brown. Hairs short sparse recumbent golden. Scutellum yellowish-red, arms black; hairs short sparse golden. Postscutellum yellowish-red, small brown semicircular areas on each side below arms of scutellum. Pleura and coxae reddish-brown; hairs golden, sparse on coxae.

Tergites yellow, 2-7 brown becoming darker and broader apically and separated from the anterior and posterior margins except anteriorly on 7. Hairs golden, short semierect on 1, dense recumbent on remainder; bullae black, 0.55(0.21) in length (width). Sternites similar but quite dense shallow punctate on 2-7; hairs very sparse recumbent, more numerous on 6-7. Genitalia yellowish-red, tips of basistyli black; hairs yellowish.

Legs reddish-brown; hairs short sparse golden-brown; bristles golden-brown. Hind femora 4.83(1.11) in length (width); 20 tuberculate spines on venter; sparse long erect hairs on dorsum; tibial spur 0.19 in length. Tarsal segments 0.61(0.24), 0.47, 0.35, 0.29, 0.50, in length (width); claws reddish, tips black; pulvilli reddish.

Female: Length, 16 mm. Head yellowish-red, ocellar area black, stem of proboscis brown; hairs short sparse yellow. Face at lower eye margin 1.00, at antennae 1.68, at vertex 1.16, and one eye 0.65, in width. Antennal segment 1

yellowish-red, 2-4 brown; short hairs yellow; segments 0.37, 0.13, 1.74, 1.79(0.47) in length (width).

Central stripe of mesonotum black, narrower than in ♂, very narrowly divided anteriorly, intermediate stripes light brown; hairs short semierect golden. Pleura and coxae yellowish-red; hairs on pleura yellow, short golden to golden-brown on coxae.

Tergite 1, broad anterior margin of 2, narrow posterior margins of 2-7 and anterior margins of 3-7, and all of 8-10 except narrow margins of 9, brown, yellow; remainder shining blackish-brown; numerous small punctures on 2-6, 7 rugose, 8 nearly smooth sparse shallow striate; bullae black, 0.55(0.18) in length (width). Hairs short semierect yellow on 1p, sparse recumbent brown on 2-5 and retrorse on 6-7, long erect yellow on 8-9, and whitish on 10; 9 at apex 1.26 and at base 0.74 in width. Sternites similar, dark bands brown basally becoming black apically; hairs very short sparse brown, recumbent on 2-5, retrorse on 6-7, erect yellow on 8; punctures sparse, more numerous on 6-7.

Legs yellowish-red, femora slightly darker. Hairs on fore and middle legs short brown, bristles orange; hairs sparse semierect on fore and middle femora, sparse recumbent on tibiae and tarsi. Hind femora 3.95(0.63) in length (width); hairs numerous short semierect brown, a few long erect yellow on posterior sides; 18 brown tuberculate spines on venter. Hairs on tibiae short sparse recumbent brown, short semierect yellow on venter; bristles orange; apical spur 0.16 and bristles 0.16 and 0.39 in length. Hairs on tarsi sparse recumbent brown above, yellow below; bristles orange; segments 0.47(0.21), 0.37, 0.26, 0.19, 0.39, in length (width); claws yellowish-red, tips black; pulvilli light brown.

Halteres and alulae brown, margin and short fringe yellowish. Wings light brown, lighter in the submarginal cells and in posterior cells 1-2, costal cell yellowish.

Material examined. UNITED STATES. *Florida, Broward Co.*: Hollywood Beh., ♀, FSCA, this record is questioned as the wings are hyaline (?teneral). *Hillsborough Co.*: Brandon, iii.1967 (Patton), 2 ♂, 2 ♀, FSCA; Hillsborough Riv. State Park, iv.1961 (Racine), Jap Beetle trap, ♂, FSCA, each of these ♀♀ lack the posterior crossvein in one wing and have a stump vein in the other wing; these are the only *Phyllomydas* examined that lack or have a stump posterior crossvein. *Lake Co.*: iv.1922 (Winter), ♂ ♀, OhSU; Lake Harris, iv.1934, iv.1932, 3 ♂, FSCA; Leesburg, iv-v.1961, viii.1960 (Curran), pair, 12 ♂, 6 ♀, FSCA; U. F. Exp. Sta., v.1951 (Curran), ♂, FSCA; Leesburg, iv.1964 (Adlerz), ♂, FSCA. *Marion Co.*: v.1956 (Weems), ♂, FSCA. *Orange Co.*: iv.1951 (van Pelt), SPB Acc. no. 110193, ♂ ♀, FSCA; Altamonte Spgs., iv.1937, 2 ♂, FSCA; Orlando, iv.1954 (Evans), 4 ♂, CU; Winderemere, iv.1948 (Berger & Link), on *Bidens*, SPB Acc. no. 98822, ♀, *Desmodium*, SPB Acc. no. 98823, ♂, FSCA; Winter Park, v.1942 (Fernald), on N. J. Tea, ♀, FSCA. *Polk Co.*: Winter Garden, vii.1948 (Link), *Myrtus*, SPB Acc. no. 98693, ♂, FSCA.

There is a dark variation of this species that has the light areas dark red and not distinct from the black or brown areas. One such male was taken in copula with a normal female by Dr. Curran, however the female has an egg protruding from the abdomen so the copulation might be questioned. This is referred to as a brown variation in the keys.

**Phyllomydas phyllocerus** Bigot

*Phyllomydas phyllocerus* Bigot, 1880: xlvii. Type-locality: "Amer. Boreal. (Rocky Mts.)", Types ♂ ♀, OXF. Refs. — Williston, 1896: 63; Aldrich, 1905: 252 (cat.); Williston, 1908: 191 (in *Mydas*); Kertész, 1909: 45 (cat.); Johnson, 1926: 139, pl. 3, figs. 5 (hind leg), 6 (wing), 7-8 (♂ genitalia, lat. and dors.), 9-10 (♀ terminalia, dors. and lat.), 11 (antennae, ♂ ♀) (short descr.; reports from Colorado: Golden, summit of Mt. Lookout, 7000 ft.; Kansas: Hamilton Co., 3500 ft., and Morton Co., 3200 ft.); Curran, 1934: 134, figs. 1, 3 (head, dorsal, ♂ ♀), 2 (♀ terminalia, ventr.), 5 (hind leg), 7 (wing); Hardy, 1943: 52 (short descr.; "rather common and widely distributed over the central states and west"); Curran, 1965: 360 (cat.; Rocky Mts., Calif., Colo., Kans., N. Mex., Texas); Papavero & Wilcox, 1968: 12 (cat.; Rocky Mts., Kansas and Texas to California); Cole, 1970: 184 (note; Rocky Mts.; not found in California); Wilcox & Papavero, 1971: 104, fig. 35 (♀ antennae); Papavero & Wilcox, 1974b: 56 (in list of spp.; USA: Colorado, Kansas, New Mexico, Texas).

Male: Length, 19 mm. Head dark brown shining, ocellar area black. Mystax reddish-brown, sparse at middle, longer on sides, a small clump of short black hairs at middle of oral margin; hairs on frons, vertex, upper occiput and lower occiput dense erect and as long as antennae 1-2, mostly reddish-brown with black at sides of antennae. Proboscis black. Face at lower eye margin 1.42, at antennae 2.32, vertex 1.89, and one eye 1.00, in width. Antennal segments 1-3 reddish-brown, 4 brown; sparse hairs black; segments 0.45, 0.11, 1.24, 3.78(0.66) in length (width).

Mesonotum dull black; humeri, lateral margins and postalar calli reddish. Hairs black semierect, anteriorly subequal in length to antennae 1, shorter posteriorly. Scutellum brown, narrow posterior margin reddish; hairs on arms reddish. Postscutellum subshining, reddish. Pleura and coxae reddish-brown; pleural hairs reddish, on coxae mostly black.

Tergites shining reddish-brown with purple reflections, lateral margins of 2-6 black. Hairs short erect black on 1p, longer laterally with a few reddish; short recumbent black on 2-7; bullae reddish, 0.82(0.18) in length (width). Sternites shining reddish-brown with faint purple reflections, narrow sides of 2-7, apical margin of 7 and all of 8, brown to black; hairs sparse recumbent black becoming numerous on 7-8. Genitalia reddish-brown, apex of basistyli black; hairs black, long reddish on proctiger.

Legs reddish-brown, tibiae and tarsi darker. Hairs black on fore and middle legs, short sparse semierect on femora, dense recumbent on tibiae and tarsi; bristles black. Hind femora 5.11(0.95) in length (width); hairs short semierect black, longer erect on posterior side; 17 tuberculate spines on venter. Hairs recumbent black on dorsum of tibiae, sparse on venter, spur and bristle 0.19 in length. Hind tarsal segments 0.68(0.26), 0.42, 0.37, 0.26, 0.53, in length (width); claws red, tips black; pulvilli light brown.

Halteres and alulae brown, fringe whitish. Wings brown, lighter posteriorly, apex of posterior cell 1 and most of posterior cell 2, hyaline.

The only female now available lacks the proboscis, antennae, all legs except one hind leg, and the halteres so only a sketchy description is given; more details are given for the red variation.

Female: Length, 18 mm. Head black, gibbosity and ocellar area shining; hairs black. Face at lower eye margin 1.26, at antennae 2.16, at vertex 1.53 and one eye 0.84, in width.

Mesonotum and scutellum dull black, hairs black; postscutellum dull brown; pleura and coxae shining brown, hairs black on coxae, reddish-brown on pleura.

Tergite 1 dull black, 1p with numerous short erect brown hairs; 2-8 shining reddish-brown with purple reflections, narrow sides of 2-7 black; 9 black, red basally, apex 1.27 and base 0.79, in width; bullae brown, 0.66(0.13) in length (width); 2-7 with numerous round punctures, 8 shallow striate; hairs short sparse recumbent black on 2-4, retrorse on 5-7, longer erect on 8 and base of 9; 10 missing. Sternites 1-8 polished reddish-brown, punctures very sparse except on 7, 8 shallow striate; hairs black, very short sparse recumbent on 2-4, retrorse on 5-7, longer erect on 8.

Hind femora and tibiae dark reddish-brown, tarsi black. Hairs numerous short semierect black on femora, long erect on posterior side; 17 black tuberculate spines on venter, 4.73(0.79) in length (width). Hairs on tibiae and tarsi numerous short recumbent black, very short sparse erect on venter of tibiae, spur 0.16 and bristle 0.32 in length; tarsal segments 0.79(0.24), 0.42, 0.32, 0.26, 0.53, in length (width).

Wings as in male.

Material examined. UNITED STATES. *Colorado, Jefferson Co.*: Golden, 2 ♂. USNM. *Kansas, Cheyenne Co.*: vii.1925 (Beamer), ♂, CNC; *Hamilton Co.*: 3350 ft, vi.1902 (Snow), ? *New Mexico, Bernarillo Co.*: Albuquerque, vii.1959 (Pullen), ♀, CIS. *Santa Fe Co.*: vi.1948 (Cazier), ♀, AMNH. *Texas, Hidalgo Co.*: 4.83 km n. San Manuel, vii.1954 (UK Mex. Exp.), ♂, UK, all black.

A red variation differs mainly in that tergites 1-7 and sternites 2-7 are yellowish-red.

Male: Length, 21 mm. Face at lower eye margin 1.37, at antennae 2.53, at vertex 2.11, and one eye 1.00, in width. Antennae dark red, club black; short hairs black; segments 0.55, 0.13, 1.32, 3.81 (0.66) in length (width). Bullae yellowish-red, 0.65(0.18) in length (width). Legs dark red, hind femora reddish; 5.79(1.05) in length (width), 19 tuberculate spines on venter; tibial spur 0.21 and bristle 0.32 in length; tarsal segments 0.79(0.29), 0.42, 0.32, 0.26, 0.53 in length (width). Halteres brownish-black; alulae brown, fringe long dense brown. Wings brown, lighter posteriorly and narrowly darker along veins; posterior cell 1 apically and 2 largely hyaline.

Female: Length, 17 mm. Head dark red, ocellar area shining black; hairs reddish. Face at lower eye margin 1.42, at antennae 2.21, at vertex 1.79, and one eye 0.89, in width. Antennae red, club brown; hairs short black; segments 0.47, 0.13, 1.84, 2.34 (0.53) in length (width).

Tergites 1p-7 yellowish-red, 1a brown, and 9-10 dark brown; hairs very short erect black on 1p, very sparse recumbent on 2-5 and retrorse on 6-7, numerous long erect on 8 and 10 and at base of 9; punctures very sparse on 2-7, numerous on 8; 9 at base 0.95 and at apex 1.63 in width; bullae red, 0.69 (0.16) in length (width). Sternites 1-7 shining yellowish-red, 8 brown; hairs black, very sparse recumbent on 2-4, sparse retrorse on 5-7, numerous erect on 8.

Femora reddish, tibiae and tarsi brown; hairs and bristles black. Hind femora 4.89(0.79) in length (width); hairs short semierect black, long erect on posterior side; 15 tuberculate spines on venter. Tibial spur 0.16 and bristle

0.32 in length; tarsal segments 0.74 (0.24), 0.47, 0.37, 0.32, 0.58, in length (width).

Material examined. UNITED STATES. *Colorado, Jefferson Co.*: Golden, ♂ ♀, USNM. *Kansas, Morton Co.*: 3200 ft (Snow), ♀, OhSU; *Texas, Dimmit Co.*: Carrizon Springs to Fowlerton Rd., vii.1921 (Duncan), ♂, CIS; *Kinney Co.*: Del Rio of Eagle Pass Rd, vii.1921 (Duncan), ♂, CIS; *Reeves Co.*: vii.1940 (Knull), ♂, OhSU: 4.8 km (3 mi.) s. Toyahvale, vi.1970 (Fisher), ♀, EF.

*Phyllomydas quercus*, sp. n.

Male: Length, 18 mm. Head shining black; sides of face extending inward below antennae and narrow sides of lower 1/2 of frons, white pollinose. Hairs black subequal to length of antennae 1, numerous recumbent at middle of gibbosity and semierect on sides; erect otherwise, slightly shorter on middle part of occiput. Proboscis black. Face at lower eye margin 1.26, at antennae 2.26, at vertex 1.68, and one eye 0.85, in width. Antennae black; hairs black; segments 0.55, 0.16, 3.16, 2.16(0.50) in length (width).

Mesonotum dull black; hairs black, anteriorly semierect and about 1/2 length of antennae 1, shorter posteriorly. Scutellum black, hairs black. Postscutellum brown, thinly brown pollinose, shallow striate on dorsum, deeper laterally. Pleura and coxae subshining black, hairs black.

Tergites black, anterior margins of 2-4 and anterior corners of 5-6 dark red; bullae black 0.45(0.16) in length (width); hairs black, dense erect and semierect on 1p, recumbent on 2-7. Sternites shining black, posterior margins of 1-6 and anterior margins of 2-4 brown; hairs short sparse recumbent black, numerous on 7-8. Genitalia brown, posterior margin of hypandrium and tip of basistyli black; hairs black, yellowish on proctiger.

Legs brown. Hairs short black semierect on fore and middle femora, recumbent on tibiae and tarsi; bristles black. Hind femora 5.53(0.95) in length (width); hairs short dense semierect black, sparse long erect on dorsal posterior side; 17 black tuberculate spines on venter. Hairs short recumbent black on tibiae, very short erect on venter, apical spur 0.16 and bristle 0.26 in length. Tarsi with short black recumbent hairs, segments 0.74(0.26), 0.42, 0.37, 0.26, 0.53, in length (width); claws yellowish-red, tips black; pulvilli brown.

Halteres and alulae brown, long fringe brown. Wings brown, lighter in submarginal cells and posterior cells 1-2.

Female: Length, 15 mm. Hairs on head slightly shorter than on ♂ but numerous. Face at lower eye margin 1.05, at antennae 1.89, at vertex 1.31, and one eye 0.75, in width. Antennal segment 1 brown, 2-4 black; short hairs black; segments 0.58, 0.13, 2.33, 1.77 (0.42) in length (width).

Tergite 1 black, 1p with semierect black hairs; 2-10 dark shining reddish-brown, 2-7 with numerous punctures, 8 shallow striate; hairs very short sparse black, recumbent on 2-5, retrorse on 6-7, numerous longer on 8-10; bullae brown, 0.55(0.13) in length (width); 9 at apex 0.63 and at base 0.34 in width.

Legs brown; hind femora black, 4.68(0.74) in length (width); 18 tuberculate spines on venter; apical spur on hind tibiae 0.13 and bristle 0.32

in length; tarsal segments 0.63(0.21), 0.37, 0.26, 0.21, 0.47, in length (width).

Holotype ♂, UNITED STATES. *Florida, Putnam Co.*, vi.1960 (Weems), FSCA.

Paratypes: ♀, same data, FSCA; same, v.1958 (Walker), ♀, FSCA. *Florida, Clay Co.*: Gold Head Branch St. Pk., v-vi.1954 (Krombein), 3 ♂, ♀, USNM; *Highlands Co.*: 2 mi. ne. intersection of rts. 70 & U.S. 27, vii.1969 (Silberglied), oak-palmetto scrub, pair, 2 ♂, ♀, CU; Lake Placid, vii.1948 (Todd), 2 ♂, UK.

#### *Phyllomydas scitulus* (Williston)

*Mydas scitulus* Williston, 1886: 291. Type-locality: USA, Arizona. Type ♂, UK. Refs. — Williston, 1898: 54 (in key to spp.); Aldrich, 1905: 252 (cat.); Kertész, 1909: 41 (cat.); Johnson, 1926: 133 (in key to spp.).

*Phyllomydas scitulus*; Hardy, 1943: 52 (note on type ♂ and in key to spp.); Curran, 1965: 360 (cat.); Papavero & Wilcox, 1968: 12 (cat.; Arizona: Pima Co.; Mexico: Sonora); Cole, 1970: 184 (note); Wilcox & Papavero, 1971: 52, fig. 34 (♀ antennae); Papavero & Wilcox, 1974b: 56 (in list of spp.; Arizona and Sonora).

Male: Length, 13 mm. Head black, gibbosity dark red, gula red; sides of face extending inward below antennae, narrow sides of lower 1/2 of frons, and occiput, white pollinose. Hairs white, short sparse at middle of gibbosity, longer laterally; erect on frons, vertex, upper and lower occiput, subequal in length to antennae 1-2. Proboscis black. Face at lower eye margin 0.89, at antennae 1.79, at vertex 1.21, and one eye 0.63, in width. Antennal segments 1 and 4 black, apex of 1 and 2-3 reddish-brown; hairs short sparse yellowish on 1, brown on 2; segments 0.34, 0.13, 1.05, 2.63(0.58), in length (width).

Mesonotum dull black; humeri, lateral and posterior margins, and dorsocentral stripes broad anteriorly and narrow for most of their length, red; hairs short semierect white. Scutellum reddish, hairs white. Postscutellum reddish, thinly white pollinose, sparse shallow striate. Pleura reddish with brown areas below on sternopleura and meron-2, coxae black; hairs white, black apically on coxae.

Tergites shining black; broad posterior margins of 1-7, anterior margins of 2-6 and anterior corner of 7, and sides of 2-6 wider anteriorly, yellow, enclosing the trapezoidal black spots; narrow lateral margins of 2-6 brown; bullae brown, 0.39(0.13) in length (width). Hairs white, long erect on 1p, short sparse recumbent on 2-7. Sternites shining black, posterior margins of 2-7 yellowish, anterior margins of 2-4 narrowly reddish, 8 light brown; hairs very sparse recumbent black, longer and more numerous on 7-8. Genitalia reddish-brown, apex of basistyli black; hairs yellowish.

Legs reddish-brown. Hairs short semierect black on fore and middle femora, dense recumbent on tibiae and tarsi. Hind femora 3.52(0.53) in length (width); hairs short semierect black, longer erect on posterior side plus a few yellowish; 16 tuberculate spines on venter. Hairs short sparse recumbent black on dorsum of tibiae, very short sparse erect on venter, spur 0.11 and bristles 0.11 in length. Tarsal segments 0.47(0.16), 0.26, 0.21, 0.16, 0.32, in length (width); claws dark red, tips black; pulvilli light brown.

Halteres and alulae brown, broad margin and fringe white. Wings hyaline, costal and tips of subcostal and marginal cells brown.

Female: Length, 17 mm. Head reddish-brown, gibbosity yellowish-red, ocellar area black. Hairs very sparse golden at middle of gibbosity, longer laterally; short sparse erect on frons and vertex. Proboscis brown. Face at lower eye margin 1.26, at antennae 2.00, at vertex 1.58, and one eye 0.74, in width. Antennae black; short sparse hairs black; segments 0.45, 0.16, 1.58, 2.00(0.53) in length (width).

Broad central stripe of mesonotum and intermediate area, dull black; remainder dark reddish; hairs short sparse recumbent black; yellowish on scutellum and pleura; black on coxae.

Tergites shining yellowish-red, 2-6 smooth, 7-8 shallow rugose, narrow sides of 1-8 black, 9 mostly black and 10 brown, 1a and base of 1p brown; bullae yellowish-red, 0.34(0.16) in length (width). Hairs very sparse erect black on 1p, recumbent on 2-5, sparse retrorse on 6 and numerous on 7; numerous erect brown on 8, base of 9 and on 10; 9 at base 0.74 and at apex 1.42 in width. Sternites 1-3 shining yellowish-red, narrow anterior margin of 1 black and 2-3 with lateral brown spots; 4-7 black with posterior margins yellowish red; 8 reddish; hairs very short sparse brown, recumbent on 2-5, retrorse on 6-7, longer erect on 8.

Legs reddish-brown; hairs black, sparse semierect on femora, numerous recumbent on tibiae and tarsi; bristles black. Hind femora 4.73(0.74) in length (width), 16 tuberculate spines on venter; tibial spur 0.16 and bristle 0.32 in length; tarsal segments 0.66(0.19), 0.42, 0.29, 0.26, 0.50 in length (width).

Halteres dark brown; alulae largely whitish and short fringe whitish. Wings light brown, costal and subcostal cells brown.

Material examined. UNITED STATES. *Arizona, Maricopa Co.*: Reata Pass, McDowell Mts., vii.1967 (Barr), ♀, UI; *Pima Co.*, Baboquivari Mts., vii.1924 (Poling), ♂ ♀, CAS; Continental, vi.1942 (Scullen), ♂, OreSU; Santa Catalina Mts., Sabino Cyn., vi.1955, vii.1967 (Werner & Butler), ♂ ♀, UA; Santa Rita Mts., vi.1961 (Westcott), ♂, EF, ♀, LACM; Tucson, vi.1963 (Parker & Stange), ♀, UCD; 19.3 km n. Tucson, v.1962 (Davis), ♂, JW. MEXICO, *Sonora*: 16 km n. El Oasis, vi.1968 (Andrews), ♂ ♀, UCR; Guaymas, vii.1952 (Lange), ♀, UCD; 8 km w. Santa Ana, vi.1961 (Menke & Stange), ♂ ♀, LACM.

A specimen labelled "Fla", ♂, USNM, is also placed here. Johnson (1913) commented on this and other specimens as follows: "In the U.S. National Museum, there are several undetermined species marked "Fla." that were there when I made my previous list (of Florida, Johnson, 1895). These closely resemble species that have been recorded only from Arizona and New Mexico, and their occurrence in Florida needs verification." *Mydas lividus* Curran (Arizona) was described in part from specimens labelled "Fla" (C. V. Riley Collection); Dr. Curran wrote in 1970 that he was certain these specimens were mislabelled. Similar data were found on specimens of *Opomydas* Curran, which is not known from east of Texas, and a female *Phyllomydas* which has been identified as *currani* Hardy.



**Phyllomydas weemsi, sp. n.**

Male: Length, 20 mm. Head dull black, sides of gibbosity and ocellar area shining; sides of face and frons narrowly, widening below antennae, and occiput, whitish pollinose. Hairs black, sparse semierect at middle of gibbosity, longer laterally; erect otherwise. Proboscis black. Face at lower eye margin 1.21, at antennae 2.21, at vertex 1.47, and one eye 1.05, in width. Antennae black; sparse hairs black; segments 0.53, 0.13, 2.43, 2.24 (0.47), in length (width).

Mesonotum subshining black; hairs black, short on humeri, postalar calli and in dorsocentral rows, longer erect on anterior lateral margins. Scutellum black, sparse long black hairs laterally. Postscutellum black. Pleura brown, coxae black; hairs black on coxae, brown on pleura.

Tergite 1p black with erect black hairs; 2-7 yellowish-red, 6-7 darker, hairs short recumbent black; bullae brown, 0.55(0.16) in length (width). Sternite 1 and 6-8 brown, 2-5 yellowish-red; sparse recumbent black hairs on 2-5, numerous on 6-8. Genitalia brown to black; short hairs black.

Femora black, tibiae and tarsi brown. Hairs short semierect black on fore and middle femora, short recumbent on tibiae and tarsi; bristles black. Hind femora 5.79 (1.42) in length (width); 24 tuberculate spines on venter; hairs numerous short semierect black, sparse long erect on posterior dorsal side. Hairs short semierect on tibiae, sparse on venter; spur 0.21 and bristle 0.32 in length. Hairs on tarsi short recumbent black; segments 0.79(0.29), 0.37, 0.29, 0.26, 0.47, in length (width); claws red, tips black; pulvilli light brown.

Halteres and alulae brown, fringe brown. Wings brown, slightly lighter posteriorly.

Female: Length, 20 mm. Similar to ♂; sides of gibbosity dark red; hairs black, shorter and less numerous. Face at lower eye margin 1.26, at antennae 2.37, at vertex 1.63, and one eye 0.95, in width. Antennae black, club reddish at middle; segments 0.53, 0.13, 2.34, 2.03 (0.58), in length (width).

Tergites 1p-8 yellowish-red; 1a, base of 1p and broad sides of 7 brown; narrow lateral margins of 2-8 black or brown; bullae red, 0.71(0.21) in length (width); sparse punctures on 2-4, numerous on 5-7, 8 shallow striate. Hairs short semierect black on 1p, short sparse recumbent on 2-5, short sparse retrorse on 6, numerous on 7, and numerous long erect on 8; 9-10 brown with long erect hairs; 9 at apex 1.63 and at base 0.89 in width. Sternites 2-6 and 8 yellowish-red, 1 and 7 brown; hairs very sparse short black, recumbent on 2-5, retrorse on 6-7, longer numerous erect on 8.

Fore and middle legs dark brown; hairs and bristles black. Hind legs reddish-brown; femora 5.79(1.11) in length (width), 22 tuberculate spines on venter; tibial spur 0.26 and apical bristles 0.27 and 0.37 in length; tarsal segments 0.79(0.26), 0.47, 0.39, 0.20, 0.58, in length (width).

Holotype ♂, UNITED STATES. *Florida, Santa Rosa Co.*, Santa Rosa I., Navarre Beach, v.1971 (Weems), grassy sand dunes, back of beach, FSCA.

Paratypes. *Florida, Escambia Co.*: Santa Rosa I., s. of Ft. Walton Beach, v.1963 (Hilton), on white sand dunes above beach, ♂, 2 ♀, FSCA. *Gulf Co.*: St. Joe Beach, v.1965 (Pechuman), ♀, CU. *Okaloosa Co.*: Destin, v.1948 (Nutting & Werner), 2 ♀, MCZ; Ft. Walton Beach, v.1971 (Weems), grassy sand dunes back of beach, 3 ♂, FSCA; Santa Rosa I., v.1966 (Hilton & Weems),

sand dunes back of white sandy beach, 7 ♂, 3 ♀, FSCA; 8.05 km w. Miramar Beach, v.1969 (Weems), white sand dunes near ocean beach, flying, ♂, FSCA. *Santa Rosa Co.*: same data as holotype, ♀, FSCA; do., v.1971 (Fairchild & Weems), shallow, open, moist, swales with club moss grasses, etc.; grassy sand, 16 ♂, 8 ♀, FSCA. *Mississippi. Jackson Co.*: Ocean Spgs., v.1931 (Dietrich), ♂, CU.

Named in honor of Howard V. Weems, Jr., Florida State Collection of Arthropods, who has been greatly interested and helpful with this project and has made special trips to collect these flies.

A black variation is described below.

Male: Length, 19 mm. Black with black hairs, wings dark brown, hind tibiae and tarsi brown. Face at lower eye margin 1.42, at antennae 2.53, at vertex 2.05, and one eye 1.11, in width. Antennal segments 0.55, 0.16, 2.76, 2.33 (0.61) in length (width). Bullae, 0.55 (0.16) in length (width). Hind femora 6.32 (0.68) in length (width), 25 tuberculate spines on venter. Tibial spur 0.21, bristles 0.16 and 0.32 in length. Tarsal segments 0.89(0.32), 0.53, 0.42, 0.29, 0.58, in length (width).

Female: Length, 23 mm. All black, anterior margins of tergites 2-5 dark red. Face at lower eye margin 1.47, at antennae 2.62, at vertex 2.05, one eye 1.05, in width. Antennal segments 0.63, 0.16, 2.63, 2.40(0.61) in length (width). Bullae 0.53(0.21) in length (width); tergite 9 at apex 1.84 and at base 1.00, in width. Hind femora 6.47 (1.42) in length (width). Tibial spur 0.26 and bristles 0.21 and 0.32, in length. Tarsal segments 0.84(0.32), 0.58, 0.42, 0.32, 0.63, in length (width).

Paratypes. *Florida, Okaloosa Co.*: Destin, v.1969 (Weems), ♂, FSCA; Fort Walton Beach, v.1969, v.1971 (Weems), grassy sand dunes back of beach, 2 ♂, FSCA; 8.05 km w. Miramar Beach, v.1969 (Weems), white sand dunes near ocean beach, flying, 2 ♂, ♀, FSCA; Shalimar, vi.1964 (Hilton), ♀, FSCA. *Santa Rosa Co.*: Santa Rosa I., Navarre Beach, v.1971 (Weems), grassy sand dunes back of beach, 2 ♂, ♀, FSCA.

This species appears to be limited to the north coast of the Gulf of Mexico.

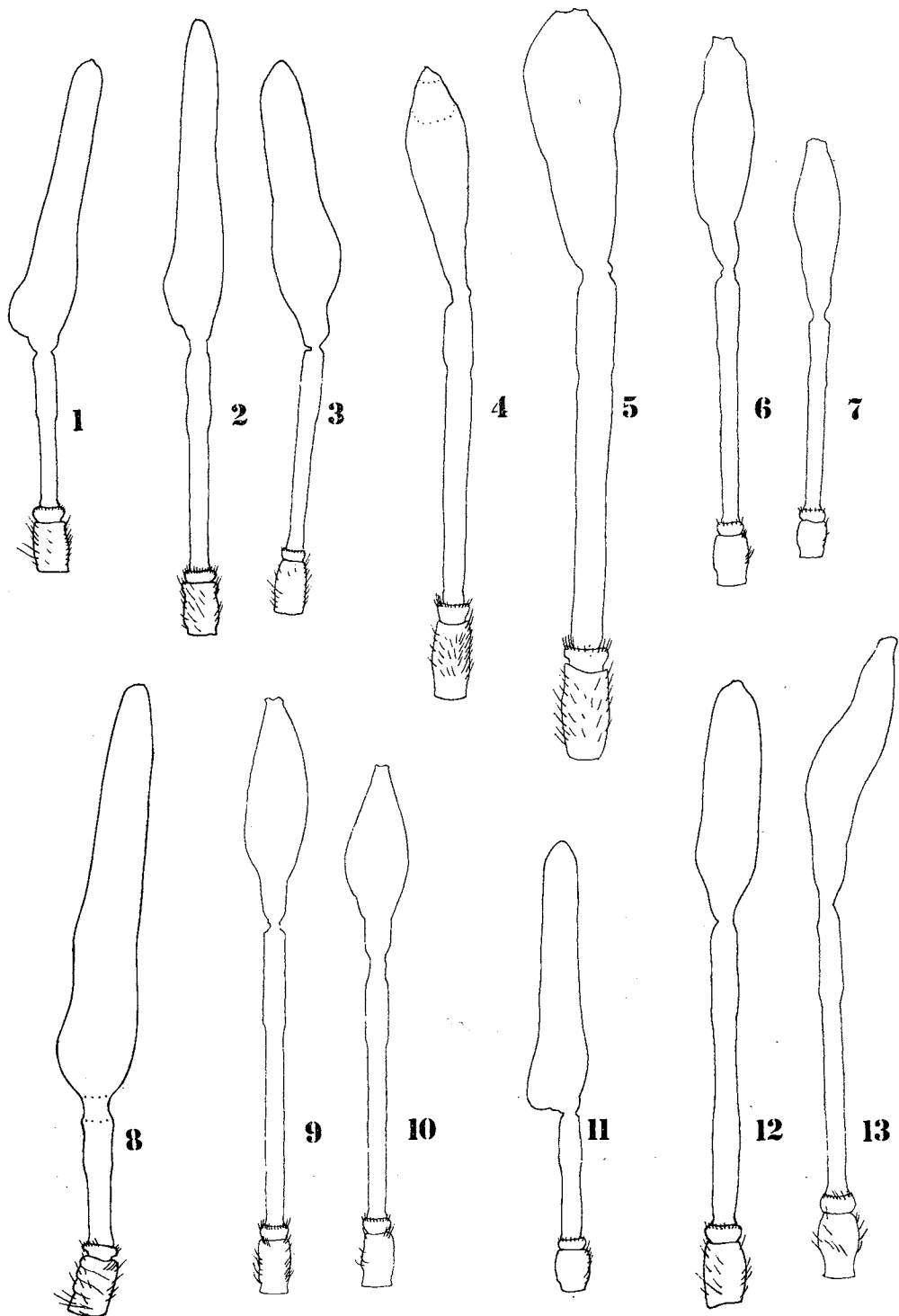
The peculiar ovipositor of these flies and the presence of retrorse hairs on the apical abdominal segments of the females indicates that the eggs are probably buried in the sand or ground.

As indicated under *parvulus* all specimens of *Phyllomydas* examined had the posterior crossvein present in both wings except two females of *parvulus* which lacked the vein in one wing and had a stump vein in the other wing.

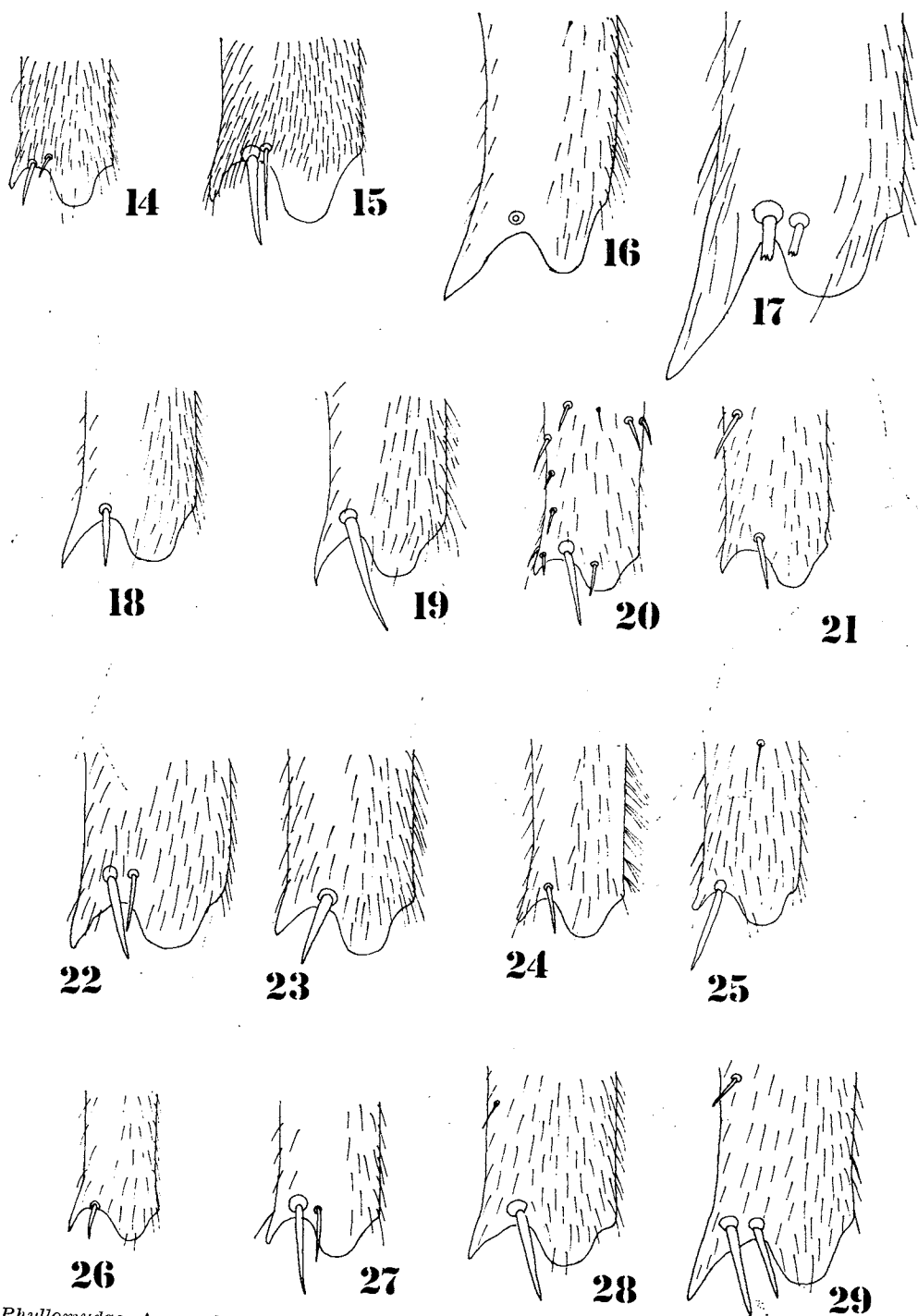
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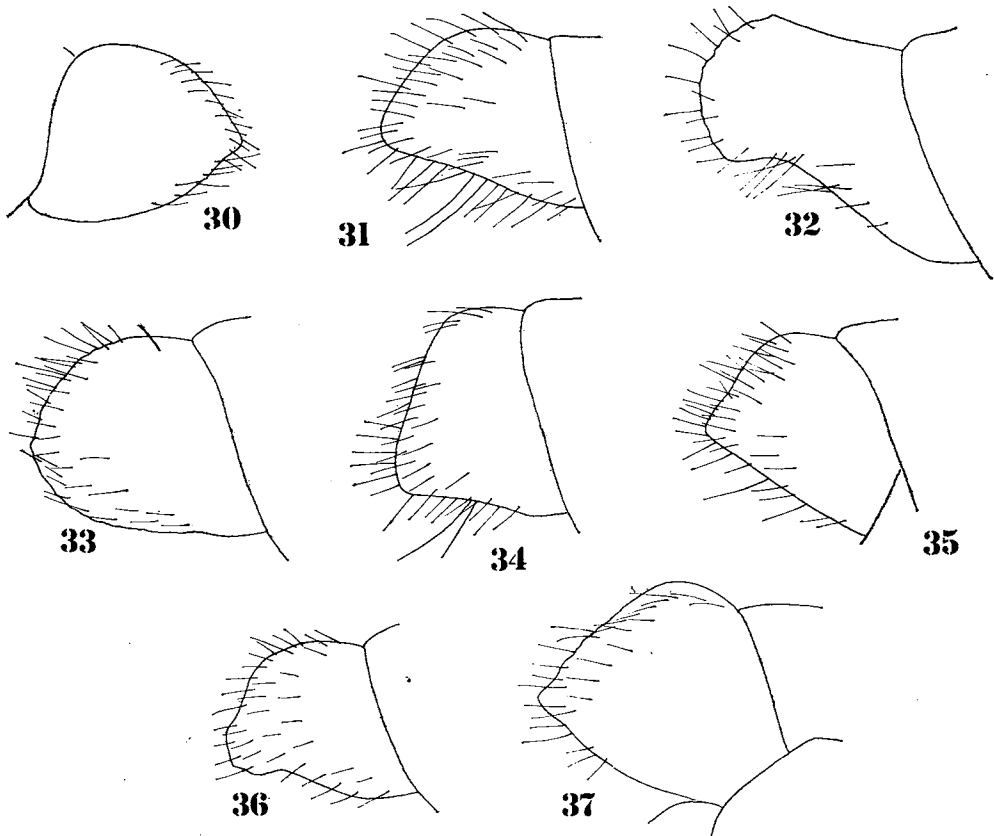
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*Phylomydas*. Antennae. 1, *bruesii*; 2-3, *currani* ♂ ♀; 4-5, *eupolis* ♂ ♀; 6-7, *parvulus* ♂ ♀; 8, *phyllocerus* ♂; 9-10, *quercus* ♂ ♀; 11, *scitulus*; 12-13, *weemsi* ♂ ♀.



*Phyllomydas*. Apex of hind tibia. 14-15, *bruesii* ♂ ♀; 16-17, *eupolis* ♂ ♀; 18-19, *currani* ♂ ♀; 20-21, *parvulus* ♀ ♂; 22-23, *phyllocerus* ♀ ♂; 24-25, *quercus* ♂ ♀; 26-27, *scitulus* ♂ ♀; 28-29, *weemsi* ♂ ♀.



*Phyllomydas*. Male epandrium, lateral view. 30, *bruesii*; 31, *currani*; 32, *eupolis*; 33, *parvulus*; 34, *phyllocerus*; 35, *quercus*; 36, *scitulus*; 37, *weemsi*.