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## Amber Fossil Drosophilidae (Diptera), Part II: Review of the Genus *Hyalistata*, New Status (Steganinae)

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### ABSTRACT

The rare Neotropical taxon *Hyalistata* Wheeler is fully defined, based on various new features, particularly of the male genitalia. It is raised from a subgenus of *Pseudiastata* to generic status. Three new living species are described: *dominica* (from island of Dominica, BWI), *floridana* (southern Florida), and *mexicoa* (northern Mexico). A fourth species, based on a single female from Colombia,

remains undescribed. A distinctive new species, *Hyalistata vitrea*, in Lower Miocene amber (ca. 20 million years old) of the Dominican Republic is also described. The amber species possesses several autapomorphies and is also the most primitive member of the genus. *Hyalistata* belongs in the tribe Gitonini Grimaldi, but a sister group in this tribe is obscure.

### INTRODUCTION

This paper is the second in what is intended to be a series devoted to drosophilid flies fossilized in amber, essentially from the extensive Oligo-Miocene deposits of the Dominican Republic and Chiapas, Mexico. Since the first paper (Grimaldi, 1987), numerous additional specimens have been found, many

of them different than those originally described. Each part of the series will treat a fossil species in the context of a revision or review of the modern species of its genus or species group. This is done primarily because of the information derived from the many more characters available in specimens of

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living species. Hopefully, there will be an opportunity at the end of the series to combine the fossil information with biogeographic and phylogenetic information (e.g., DeSalle, 1992; Grimaldi, 1990; Thomas and Hunt, 1993; DeSalle, 1992), so as to provide a temporal component to our knowledge of drosophilid evolution. Any synthesis will critically depend on a comprehensive knowledge of relationships and distributions of living relatives, particularly of the Central American and Caribbean faunas.

*Hyalistata* are exceedingly rare flies: only nine pinned specimens exist in major collections, representing five species. The odds would seem rather remote that one would become embalmed in resin 20 million years ago, let alone be found. At least one (*H. pallida*), and probably all, of the living species are larval predators of sessile Sternorrhyncha, as are the closely related genera *Pseudiasata* Coquillett, *Rhinoleucophenga* Hendel, and *Acletoxenus* Frauenfeld (which comprise the subtribe Acletoxenina Grimaldi in the tribe Gitonini Grimaldi). Drosophilids with predatory larvae are never collected in abundance with general methods, such as sweep netting or baiting, but mostly confine themselves to the areas of their host and hosts' plant. An amber fossil species in this genus, albeit anomalous, contributes toward much needed data on the history of the steganines.

#### METHODS, MATERIALS, ACKNOWLEDGMENTS

Methods of genitalic dissections and morphological terminology follow my monograph (Grimaldi, 1990). Methods of preparation and examination of amber specimens are also given elsewhere (Grimaldi, 1993). Measurements were made with a precision stage micrometer ( $\pm .001$  mm). Standard measurements are (with abbreviations): face depth (FaD), frons width (FrW), head depth (HD), head width (HW), thorax length [including scutellum] (ThL), wing length (WL); lengths of anterior dorsocentral seta (AD), posterior dorsocentral (PD), and prescutellar acrostichals (PS). Lengths are in millimeters. Diagnostic ratios are given in the descriptions.

The amber specimen was originally pur-

chased from Mr. Jacob Brodzinsky of Santo Domingo, Dominican Republic, and its original provenance could be surmised only by the information given by the amber dealers. Pinned specimens were borrowed from the following institutions, and the help of the respective curators and collection managers are greatly appreciated: California Academy of Sciences (CAS): Dr. Paul H. Arnaud, Jr., Dr. Norman D. Penny.; Canadian National Collection, Ottawa (CNC): Dr. Jeff Cumming; National Museum of Natural History (NMNH): Dr. Wayne N. Mathis, Ms. Holly Williams.

Wheeler (1960) did not dissect the genitalia of the *Hyalistata* specimens; but dissections of most specimens, including types, were done in this study to: (1) assess the variation in other characters, such as the pattern of spots on the tergites, and (2) help elucidate the generic relationships of *Hyalistata*. All species are known only from the holotype, or the holotype and a paratype.

Comments on the manuscript by Wayne Mathis, Peter Chandler, and Toyohi Okada are greatly appreciated.

#### SYSTEMATICS

##### Genus *Hyalistata*, new status

*Pseudiasata* (*Hyalistata*) Wheeler, 1960: 67. Type species: *P. pictiventris* Wheeler, 1960. By original designation.

##### GENERAL DESCRIPTION OF LIVING SPECIES (ITALICIZED CHARACTERS ARE SYNAPOMORPHIC):

**HEAD:** Eyes dark brick-red, with even row of 23–26 postocular setae on each side. Ocellar triangle black brown; *ocellar setae short*,  $0.5\times$  *size of proclinate orbital*. Postocellars cruciate for about  $0.3\times$  their length. Inner vertical setae long, parallel, and reclinate; *outer verticals strongly divergent and latero-clinate*. Distance between anterior reclinate and proclinate about equal to diameter of socket at base. *Face narrow*, flat, *sides parallel*. Oral margin deeply excavated into face, with dorsal margin flat. One pair vibrissae. Palps yellow, of about same length as labellum. *Labellum small but geniculate*, laterally compressed; labium and labrum long and narrow, nearly same length as arista. Pedicel

with only 1 black seta on dorsal surface (none on distal edge), laterocline. Lateral surface of pedicel ca.  $0.6 \times$  length of medial surface. Flagellomere II (at base of arista) tiny, yellow. *Arista pubescent*, length of pubescence ca.  $3 \times$  width of arisal trunk. Arista  $2.5 \times$  length of flagellomere I.

**THORAX:** Pleura, notum, scutellum, and legs unicolorous yellow-ochre. Katepisternum with 2 long, black setae; dorsalmost one very long, apex reaching to notopleural suture or not quite. Postpronotal lobe with 1 large seta; notopleural suture with 2 large setae, a dorsal one above these; 2 long supra-alar setae, with 2 short ones immediately anterior to anterior supra-alar. Acrostichal setulae black, not arranged in rows, gradually longer posteriad; pair of long prescutellar acrostichals present.

Wings completely hyaline. Section of costal vein proximal to sc break with stout, black setae; 2 large black setae at sc break. *Costal vein (distal to sc break) with inner row of stout, flat, black setae that are densely packed* (barely with space between them), these end midway between apices of veins  $R_{2+3}$  and  $R_{4+5}$ ; outer row of setae much finer, with larger spaces between them. Costal vein extended to apex of vein  $M_1$ .  $R_{2+3}$  and  $R_{4+5}$  parallel,  $R_{4+5}$  ended exactly at wing tip. Vein bm-cu absent (no bm cell present); vein  $CuA_2$  present (cell cup present), vein  $A_1$  well developed. Crossvein r-m very short; vein m-cu long.

**LEGS:** Forefemur without ctenidium. *Midfemur with lateral row of 5–7 stout, black setae. Mid and hind tarsi with ventral surface having longitudinal row of cuneiform setulae ("hair seam")*, medial to this is row of stout, black setae; then a micropubescent space ventrally, and a row of finer setulae bordering other side of pubescent space. Hair seam not as apparent on hind legs. Apex of midtibia with row of 4 short, stout, black setae lying between 2 large, stout setae; no dorsal, preapical seta present on midtibia (as discussed in Grimaldi [1990] for the *Acletoxenina*).

**GENITALIA:** Male: ventral lobe of epandrium with 12–15 fine setulae having large, socketed bases; dorsal margin of epandrium incomplete (except in *pictiventris*); cerci with numerous, short, fine setulae (no distinctively large setae); pair of surstyli not medial to ventral lobes of epandrium, but lying beneath cerci, articulated with gonopods or paraph-

yses, and without a "decasternum" sclerite connecting the pair. *Apex of each surstylus with comblike row of 8–14 long, heavily sclerotized prensisetae*, or teeth. Paraphyses are low, rounded lobes largely fused to gonopods and rest of hypandrium, bearing 4–12 fine setulae. Gonopods with prominent lateral arms, which are sclerotized and curled in posterior view. Distiphallus large, bulbous; sometimes with pair of small, lightly sclerotized flanges. Except for *H. pallida*, *hypandrium with a narrow base that is distinctively asymmetrical, being turned to the fly's left*. Female: Spermathecal capsules small, sclerotized, spherical or semispherical (known for 3 species). Egg: known only for one species (*H. floridana*), typically steganine, with pair of shallow ventral keels and no filaments.

**DISCUSSION:** Descriptions of characters and the relationships among the group of genera with predatory larvae placed in the subtribe *Acletoxenina* Grimaldi are provided elsewhere (Grimaldi 1987; 1990). *Hyalistata* is removed as a subgenus of the genus *Pseudiasata* since it possesses at least half the number of interfrontal setulae commonly seen in *Pseudiasata* and even in *Rhinoleucophenga*. The genus, in fact, possesses derived features common to *Acletoxenus* and *Mayagueza*, in particular the narrow face and frons with parallel sides and a small pair of anterior dorsocentral setae. The fossil species is intriguing, in having minute ocellar setae and exceptionally small anterior dorsocentral setae (smaller than in any living species), similar to those in *Acletoxenus* and *Mayagueza*. *Hyalistata* may actually be the most plesiomorphic member of the subtribe *Acletoxenina*, based on retention of the surstyli, albeit incomplete.

#### *Hyalistata pallida*, new combination

Figures 1, 4–6

*Pseudiasata (Hyalistata) pallida* Wheeler, 1960: 68.

**DIAGNOSIS:** Frons pale yellow, distinctively narrow,  $FrW/HD = 0.18$  (holotype),  $0.24$  (paratype) (vs. mean of  $0.32$  in other described, living species); midfemur with lateral row of 7 stout, black setae; anterior dorsocentral setae quite short,  $AD/PD = 0.43$  (vs. mean of  $0.50$  in other described, living

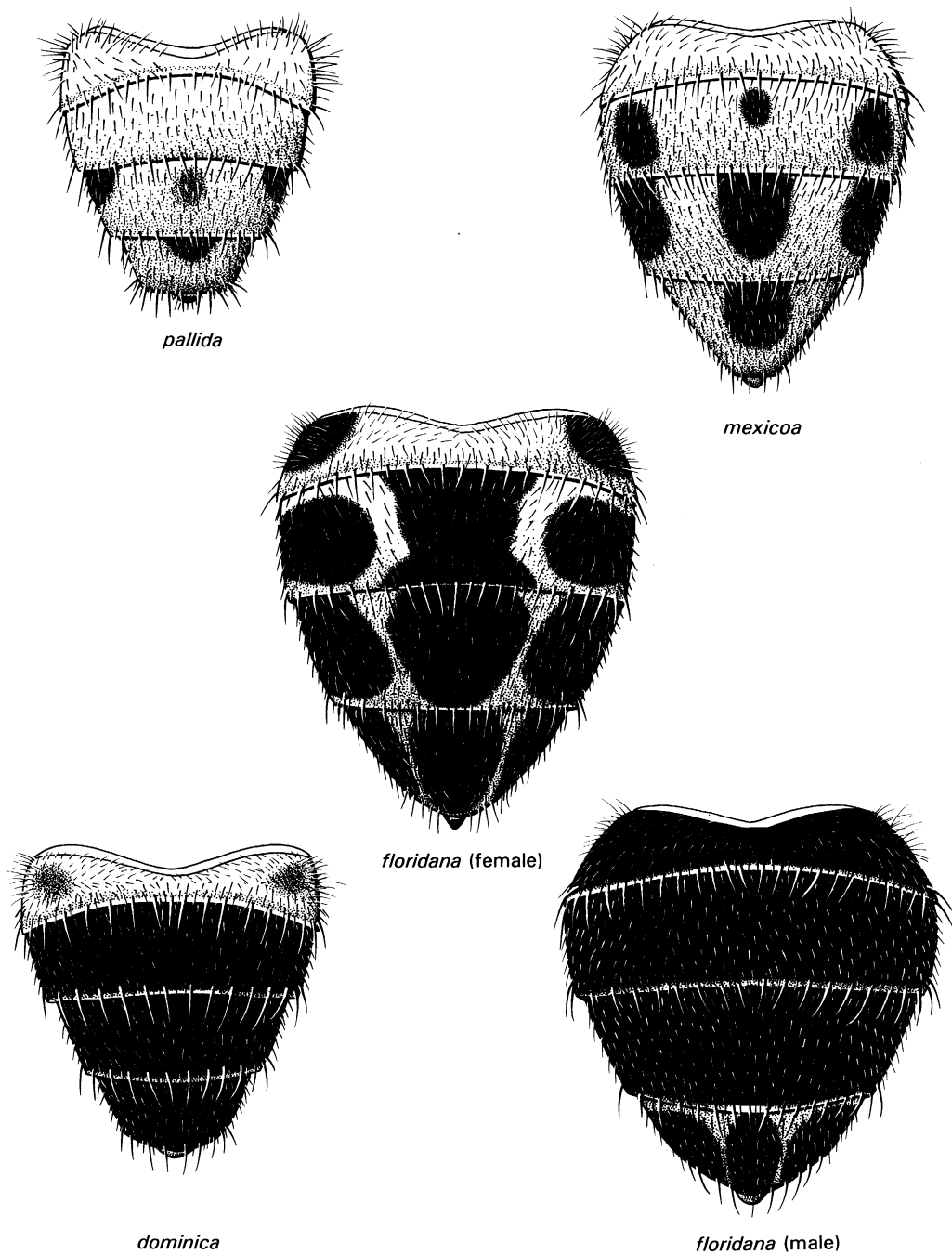


Fig. 1. Patterns on abdominal tergites of living *Hyalistata* species (all to same scale).

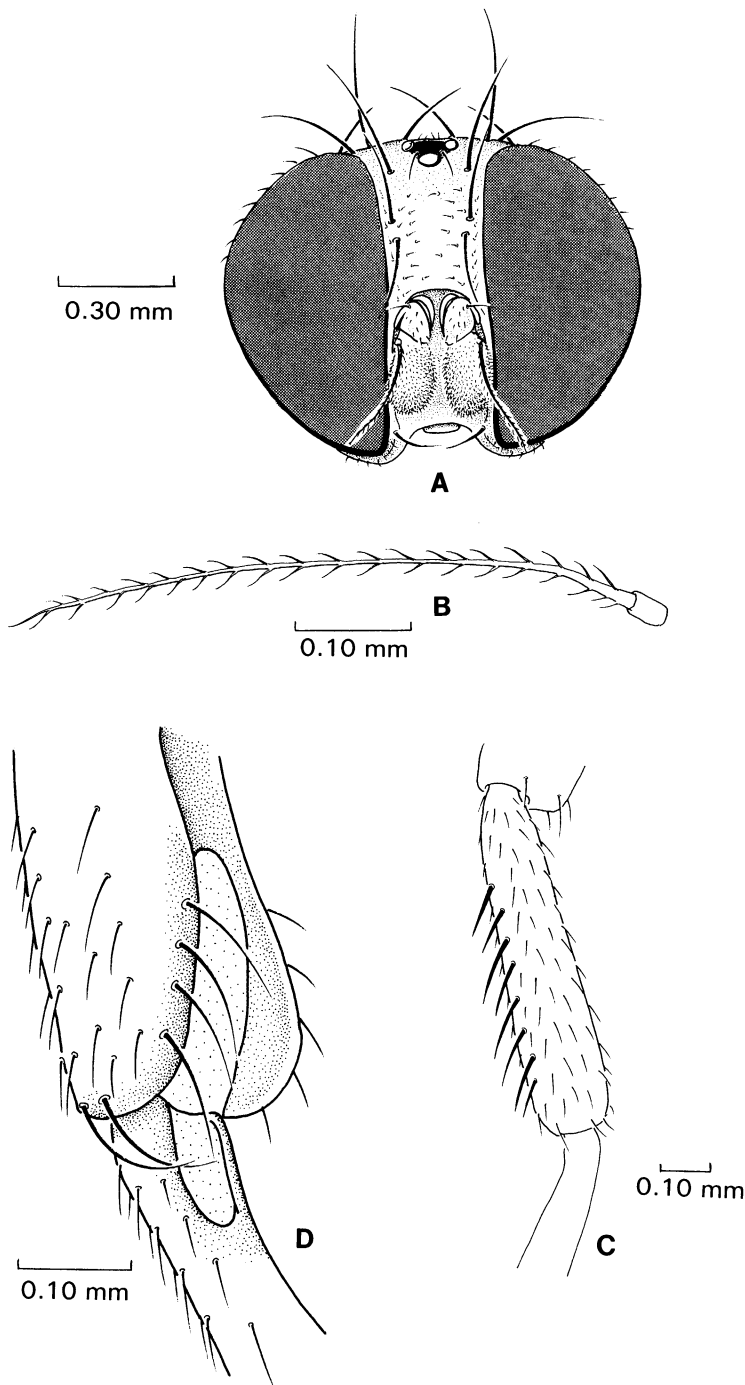


Fig. 2. Diagnostic features of *Hyalistata*, based on *H. dominica*, n.sp. A. Head, frontal view. B. Arista, detail. C. Midfemur. D. Midfemoral-tibial joint.

species); abdomen with tergites I–III yellow, tergite IV with 3 diffuse brown spots (median one pale), tV with single median spot, sternites and epandrium pale yellow. Male genitalia: distinctively lacking narrow stem of hypandrium, paraphyses with 5 fine setulae, distiphallus bulbous and folded ventrally, with pair of small labia flanking median slit.

TYPES: Holotype: Male, TRINIDAD: St. Augustine, III/17/54, F.D. Bennett, no. 267, "associated with psyllid on guava leaf." [not dissected]; specimen is partially crushed on its right side, due to the minuten pinned through it. Paratype: Female, same data as holotype, no. 270. Both in NMNH.

COMMENTS: Both specimens were obviously reared, since there is a puparium glued to the side of each pin. Details of the puparium would be interesting to examine under high magnification, but the glue prevents this.

*Hyalistata pictiventris*,  
new combination

Figures 1, 4–6

*Pseudastata* (*Hyalistata*) *pictiventris* Wheeler, 1960: 68; *Hyalistata floridana*, new species (misidentification).

DIAGNOSIS: Frons very light brown or ochre; midfemur with row of 5–6 stout black setae on lateral surface, apex of femur with curved black setae and deeply notched femoral-tibial joint (but flange on notch not well developed); halteres creamy white, without dark disc on apical surface; prescutellar setae of moderate depth (PS/PD = 0.56); abdominal tergites II and III without spots, tergite IV with 3 spots, tergite V with 1 median spot [seen best when the greasy cuticle of the holotype was cleared in KOH]. Male genitalia: narrow stem of hypandrium actually angled; paraphyses with 7–8 fine setulae; distiphallus narrowed apically, membranous laterally, with pair of ventromedial sclerites; surstyli narrow, folded ventrally (not visible in posterior view—possibly an artifact of preservation), and with row of 7 prenisetae.

TYPES: Holotype: MEXICO: Mor., Cuernavaca, IV/45, N.H.L. Krauss. In NMNH. Genitalia dissected by DAG. Specimen is point mounted and somewhat greasy, but otherwise in good condition.

COMMENTS: The two specimens from southern Florida mentioned by Wheeler

(1960) belong to a species different from the holotype. He had noted the differences in abdominal pattern among all 3 specimens, even allowing for the greasy discoloration of the holotype's abdomen.

*Hyalistata floridana*, new species

Figures 1, 3–6

DIAGNOSIS: Proclinate and anterior reclinate orbital setae lying in middle of frons; posterior dorsocentral setae strongly convergent, with tips touching; halter with dark disc on apical surface; mid femur with row of 5 stout, black setae; male with tergites I–IV entirely black, female with large spots on these tergites. Male genitalia: surstylus with 10 prenisetae; distiphallus bulbous and folded ventrad, with pair of median labia.

DESCRIPTION: Head: Frons of moderate width compared to other species in genus (FrW/HD = 0.33), light brown in middle, with ca. 35 fine setulae. Ocellar setae slightly convergent. Proclinate and anterior reclinate orbital setae lying in middle of frons; ipsilateral orbitals nearly in line; anterior reclinate slightly longer than proclinate, ant. reclinate  $0.7 \times$  length of post. reclinate. Posterior reclinate midway between ipsilateral anterior reclinate and inner vertical. Contralateral proclinate and anterior reclinate nearly parallel; posterior reclinate slightly divergent. Face whitish yellow. 13 subvibrissal setae on cheek, ca.  $0.4 \times$  size of vibrissa. Antenna: pedicel yellow, flagellomere I slightly darker; ca. 10 fine setulae on rest of pedicel, most on ventromedial margin. Base of flagellomere III slightly thickened.

Thorax: Prescutellar acrostichals relatively long (PS/PD = 0.63 [holotype]), slightly longer than anterior dorsocentrals. Anterior dorsocentral setae slightly convergent, bases slightly medial to bases of posterior dorsocentrals, AD/PD = 0.53 [holotype]; post. dorsocentrals strongly convergent, with tips touching. Scutellum large, anterior scutellar setae divergent; posterior scutellars cruciate for  $0.3 \times$  their length.

Halter creamy, light yellow, with dark disc on apical surface. Midfemur with lateral row of 5 stout, black setae. Apex of midfemur with 2 curved black setae, opposing row of 4 finer, curved setae; femoral-tibial joint with

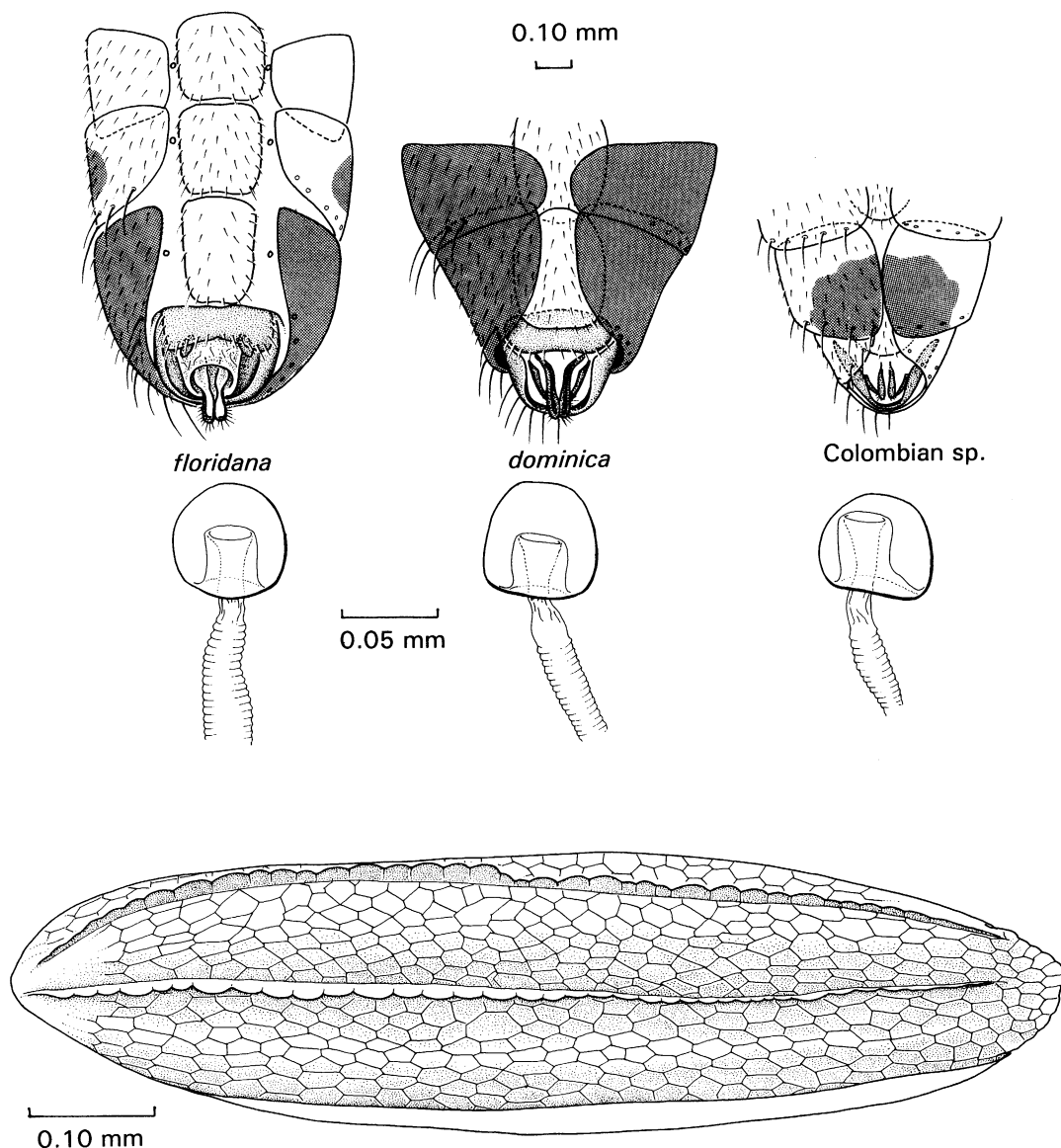


Fig. 3. Female genitalia of *Hyalistata*: ventral views of posterior end of abdomen, and spermathecal capsules. Egg of *H. floridana*.

deep ventral notch, lateral side expanded into flange.

Abdomen: Male (holotype) with tergites I–IV completely black; tergite V with 3 large, black spots; female (paratype) with tergite II having pair of black spots on lateral edges, tergite III–V with large median spots and pairs of lateral spots (spots are large, almost touching). Male with half of the posterior sternite melanized; epandrium unmelanized.

Male genitalia: epandrium incomplete on dorsal surface; ventral lobes of epandrium each with 12–13 fine setulae on inner surface; dorsal and ventral portions of cercus approximately equal in size. Surstylus with 10 prensisetae. Distiphallus bulbous, slightly shorter than aedeagal apodeme; folded ventrad, with small labia bordering ventral slit. Paraphyses with 6–8 fine setulae; hypandrium with narrow base acutely angled.

**TYPES:** Holotype: Male, FLORIDA: Dade Co., Everglades Nat. Park, H.A. Denmark, 12/III/55, "at *Avicennia nitida*" [black mangrove]. Genitalia dissected by DAG. In NMNH. Specimen is pointed and in excellent condition. Paratype: Female, FLORIDA: Dade Co., Homestead, 4/IV/52, G.S. Walley, with red labels reading: "Allotype, *Pseudistata pictiventris*, No. 7141." Genitalia dissected by DAG. In CNC. Specimen is glued to the side of pin, and has some acrostichals rubbed off, and prescutellar and notopleural setae broken; otherwise it is in good condition.

**ETYMOLOGY:** Name taken from the type locality.

**COMMENTS:** Instead of tergites I–IV being completely black, as in the male, the female has a pattern (see above for details). Otherwise, the two individuals match very closely, particularly in the size of the anterior dorsocentral setae relative to the posterior dorsocentrals and number of stout black setae on the midfemur. This species is described from the type series of *H. pictiventris*.

***Hyalistata mexicana*, new species**

Figures 1, 4–6

**DIAGNOSIS:** Frontal-orbital setae lying on posterodorsal half of frons; midfemur with row of 7 stout, black setae; abdomen with tergites III and IV having 3 black spots each, tergite V with single, median spot; sternites IV and V sunken into deep cavity. Male genitalia: surstylus with 10 prensisetae, distiphallus only slightly wider than aedeagal apodeme.

**DESCRIPTION:** Head: FrW/HD = 0.32, dark brown in middle, with ca. 15 fine setulae. Ocellar setae slightly divergent; postocellars cruciate for about  $0.4\times$  their length. Orbital setae lying mostly on posterodorsal half of frons; ipsilateral orbitals nearly in line; proclinate and anterior reclinate of same length, posterior reclinate slightly longer; the only specimen, the holotype, teratologically has a duplicated anterior reclinate just behind the true ant. reclinate. Posterior reclinate midway between ipsilateral anterior reclinate and inner vertical. 7–8 subvibrissal setulae on cheek, ca.  $0.3\times$  size of vibrissa. Antennae: pedicel and flagellomere I yellow. Base of flagellomere III slightly thickened.

Thorax: Prescutellar setae relatively long (PS/PD = 0.61). Anterior dorsocentral setae slightly convergent, bases slightly medial to bases of posterior dorsocentrals; lengths ca.  $0.6\times$  that of posterior dorsocentrals; post. dorsocentrals slightly convergent. Anterior scutellar setae slightly divergent; posterior scutellars cruciate for  $0.3\times$  their length.

Legs: Midfemur with lateral row of 7 stout, black setae.

Abdomen (male): Tergites I and II yellow; III and IV with 3 black spots each (2 lateral ones, 1 median one), spots on tergite III are smaller; lateral spots on tergite IV extended ventrally, with tergite; tergite V with single, large, median spot. Tergites III–V extended ventrally, nearly meeting in middle; male sternite III raised, sternites IV and V sunken into deep cavity; sternite V with dark median spot. Tergites VI and VII narrow, U-shaped strips, slightly melanized.

Male genitalia: Epandrium incomplete on dorsal surface; ventral lobes of epandrium each with 12–13 fine setulae on inner surface; dorsal portion of cercus shorter than ventral portion. Surstylus with 10 prensisetae. Distiphallus just slightly shorter than aedeagal apodeme and slightly wider; folded ventrad, with medial trough present. Paraphyses with 4 fine setulae; hypandrium with narrow base acutely angled.

**TYPE:** Holotype, male: MEXICO: San Luis Potosi, El Bonito, 7 mi S. Ciudad Valles, 300', 19/XII/70, P.H. & M. Arnaud. Genitalia dissected by DAG. In CAS. Specimen is glued to the side of a pin and is in excellent condition.

**ETYMOLOGY:** Name is a feminine derivation of Mexico.

**COMMENTS:** This species shares with *dominica* males a very distinctive feature: a deep sternal cavity on segments III and IV. The feature is presumably related to copulation.

***Hyalistata dominica*, new species**

Figures 1–6

**DIAGNOSIS:** Anterior reclinate and proclinate orbital setae on anterior half of frons; midfemur with row of 7 stout, black setae; midfemoral-tibial joint with conspicuous flange on edge of ventral notch; abdominal tergites III–VII black, male with sternites IV



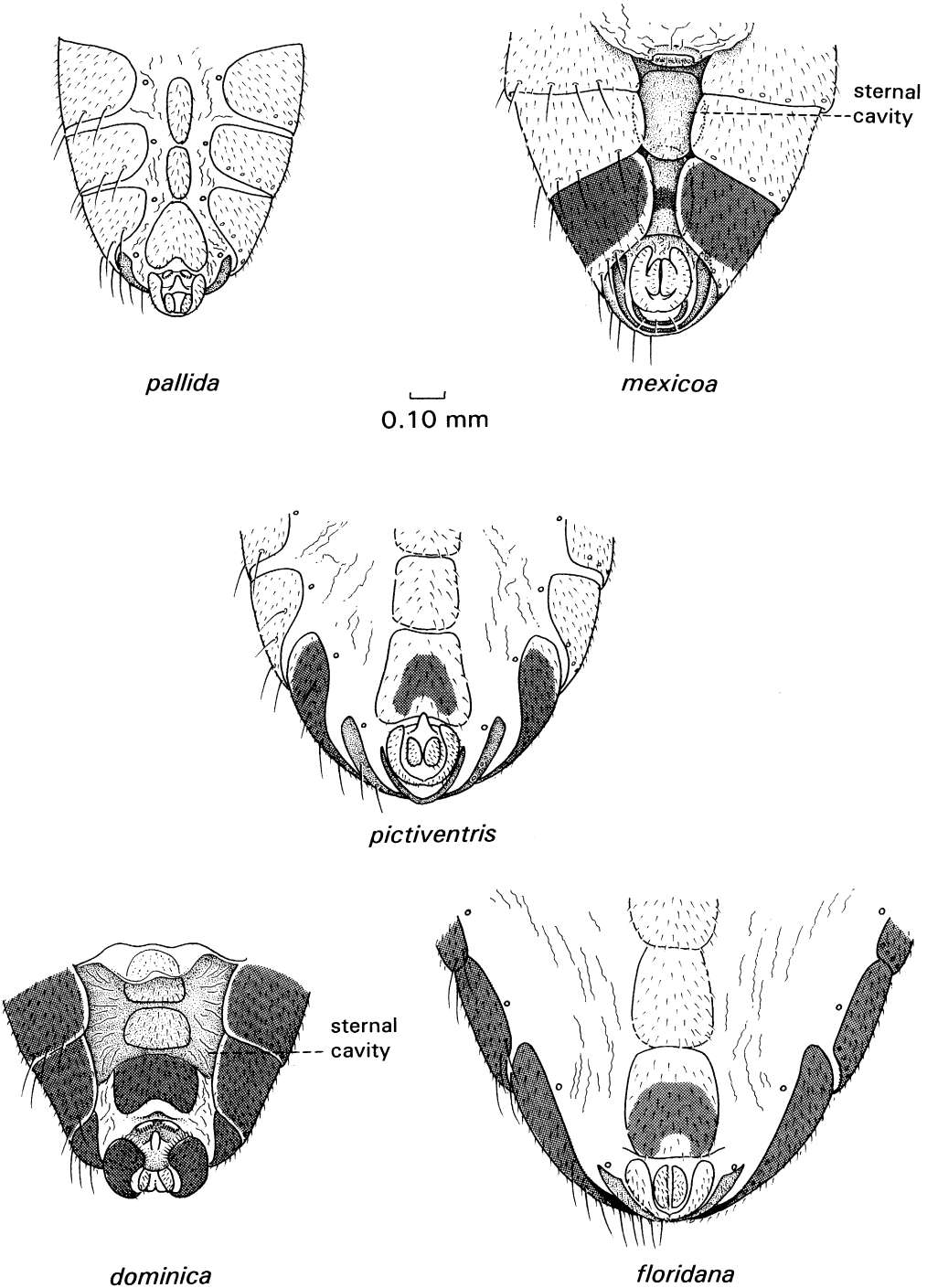


Fig. 4. Posterior end of male abdomens of living species, ventral views.

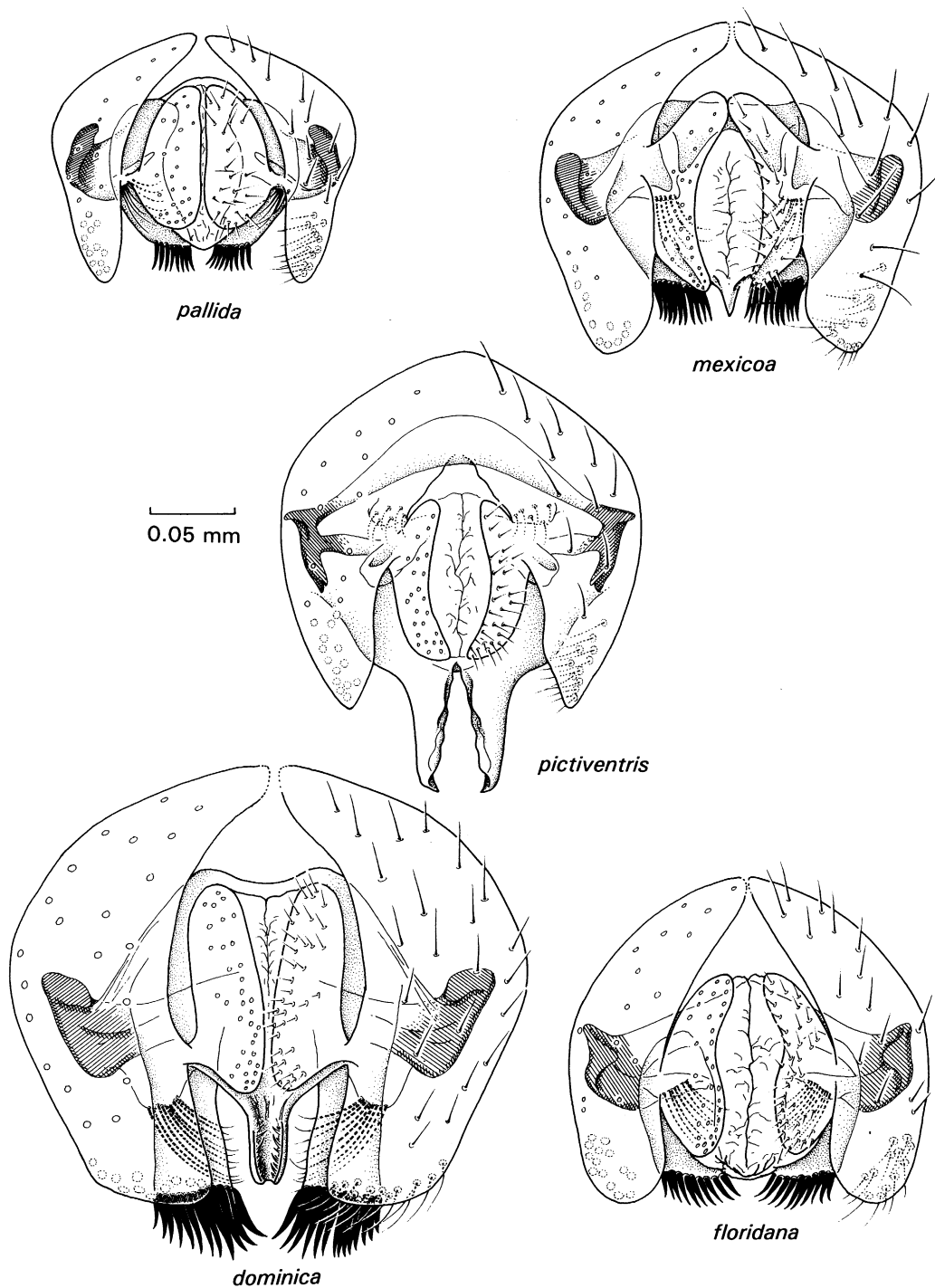


Fig. 5. Male genitalia of living species, posterior views, showing principally the epandrium, surstyli, and some internal structures.

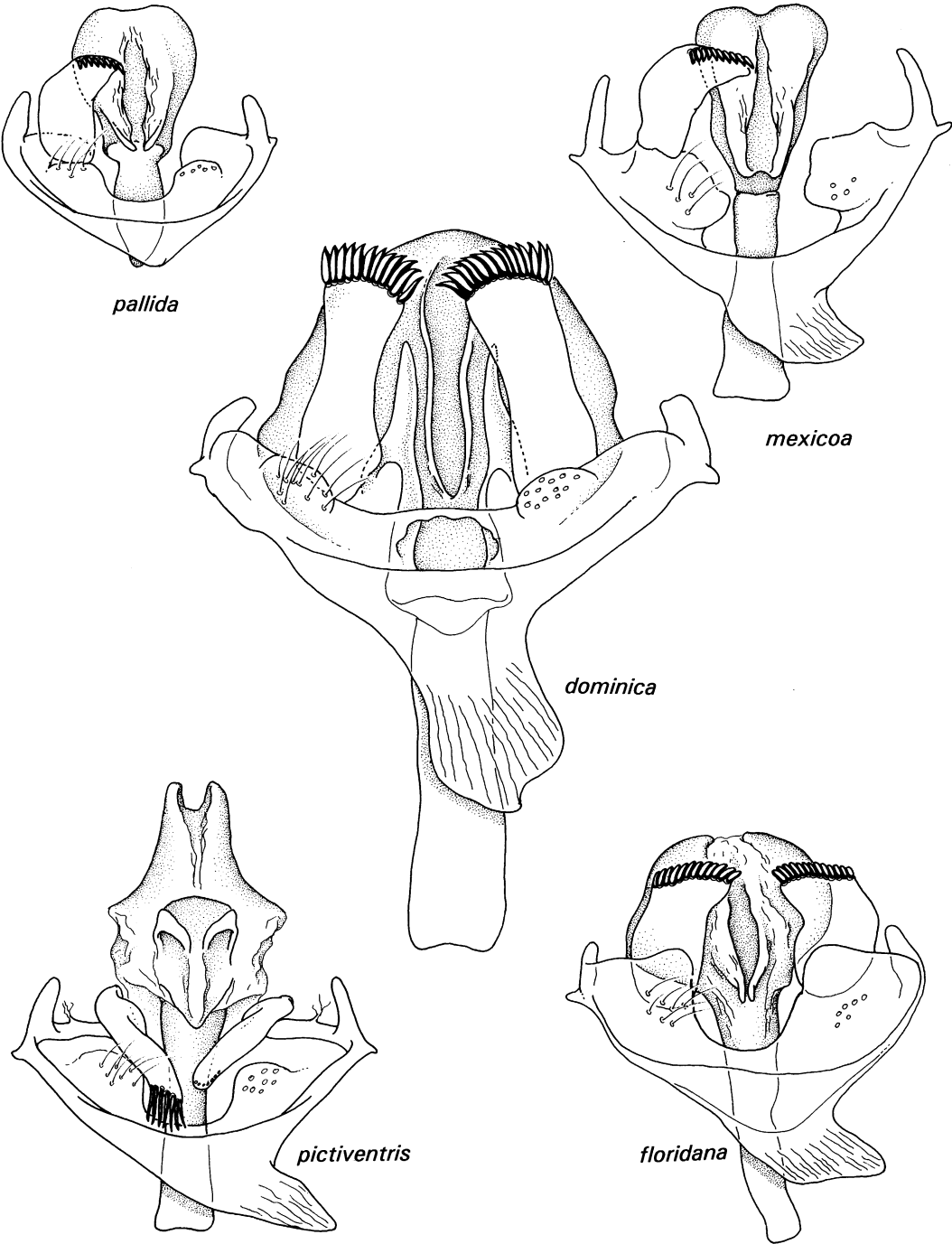


Fig. 6. Internal male genitalia of living species, ventral view of phallus, apodemes, and hypandrium.

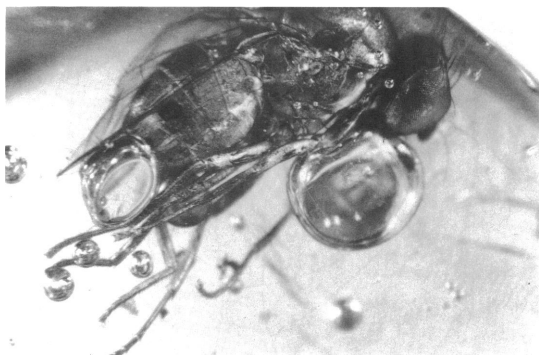


Fig. 7. Amber fossil species, *Hyalistata vitrea*, n.sp., habitus photograph.

and V sunken into deep cavity; epandrium (male) large, stout, black; surstylus with 12–14 prensisetae; distiphallus large, bulbous, flanked by pair of pointed lobes; paraphysis with 12–13 fine setulae.

**DESCRIPTION:** Head: FrW/HL = 0.31 (holo- and paratype), blackish brown in middle, with ca. 25 fine setulae. Ocellar triangle same color as most of frons or slightly darker; ocellar setae short and fine,  $0.7\times$  size of proclinate orbital, strongly convergent to parallel; postocellars cruciate for  $0.4\text{--}0.5\times$  their length. Only posterior reclinate orbital setae lying on posterodorsal half of frons (others on anterior half); anterior reclinate orbital slightly lateral to line between ipsilateral proclinate and post. reclinate; proclinate slightly shorter than anterior reclinate, post. reclinate ca.  $1.2\times$  length of ant. reclinate; distance between anterior reclinate and proclinate about equal to diameter of socket at base. Posterior reclinate closer to ipsilateral inner vertical than to proclinate; proclinate closer to ptilinal suture than to posterior reclinate. Contralateral proclinate nearly parallel; ant. and post. reclinate slightly divergent (posterior pair moroso). 8 setulae on cheek, ca.  $0.3\times$  size of vibrissa. Antenna: pedicel yellow, flagellomere I slightly darker.

**Thorax:** Anterior dorsocentral setae slightly divergent, bases posterior and slightly medial to bases of posterior dorsocentrals; lengths  $0.48\text{--}0.55\times$  that of posterior dorsocentrals; post. dorsocentrals slightly convergent. Scutellum large, anterior scutellar setae divergent; posterior scutellars cruciate for  $0.5\times$  their length.

**Legs:** Midfemur with lateral row of 7 stout, black setae (apical one smallest). Mid and hind femora with the femoral-tibial joint extended into a deep ventral notch, the medial edge of this notch expanded into a small flange. Apex of midfemur also with 2 apical setae (ca.  $2\times$  size of other smallest setae on femur), these setae curved toward row of 4–5 slightly thinner setae, which are also slightly curved.

**Abdomen:** Tergites I and II yellow, tergite II with pair of diffuse, light brown spots near lateral edge; tergites III–VII, and epandrium in male, are black. Male with tergites IV and V extended ventrally, but not approaching near middle; sternites IV and V sunken into deep, rounded cavity; sternite VI raised, heavily and entirely melanized. Female with only apical sternite melanized; apical tergite (tVIII) a narrow, U-shaped sclerite just above cerci.

**Male genitalia:** Epandrium large, stout, incomplete on dorsal surface; ventral lobes of epandrium each with 13–15 fine setulae on inner surface; dorsal portion of cercus much longer than ventral portion. Surstylus with 12–14 prensisetae. Distiphallus broad and bulbous, with narrow ventral trough; immediately ventral to distiphallus is pair of pointed lobes flanking the ventral slit (the true paraphyses?). Paraphyses with 12–13 fine setulae; hypandrium with narrow base less angled than in other species. Female with spermathecal capsule having introvert extended halfway into capsule.

**TYPES:** Holotype, male: DOMINICA (West Indies), Fond Figure R., 400', IV/12/66, R.J. Gagné. Paratype: female: DOMINICA, Pont Casse, XI/23/64, P.J. Spangler. Genitalia of both specimens dissected by DAG. Both in the NMNH.

**ETYMOLOGY:** Name taken directly from Dominica, the island where the species occurs.

**COMMENTS:** Males of this species share with *mexicoa* the distinctive sternal cavity.

### *Hyalistata* sp.

#### Figure 3

**DESCRIPTION:** A single female closely resembling *pallida*, particularly in the following derived characteristics: FrW/HD = 0.26 ( $0.18\text{--}0.24$  in *pallida*,  $0.31\text{--}0.33$  in other spe-

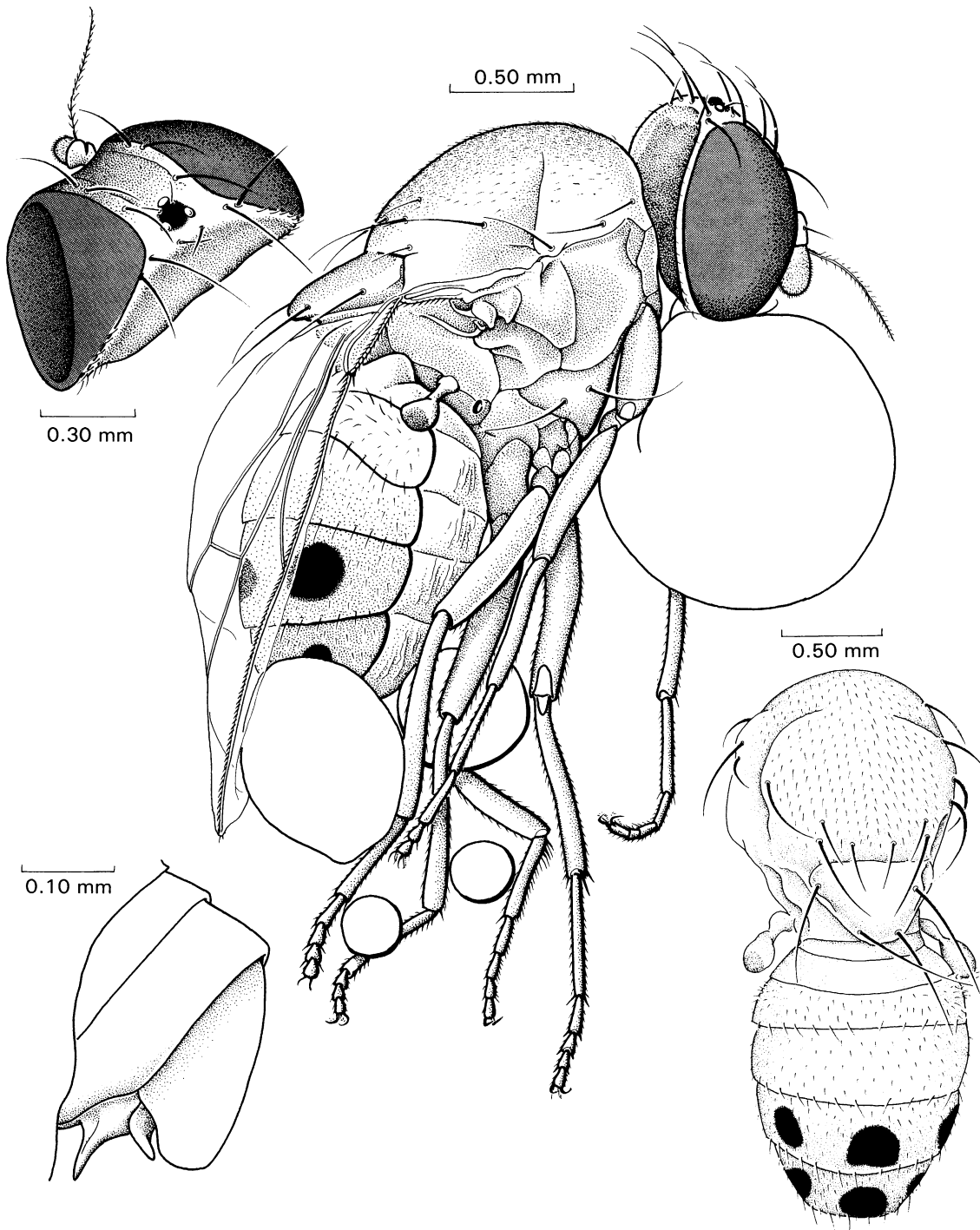


Fig. 8. *Hyalistata vitrea*, habitus with details of front of head, genitalia, and abdominal pattern.

cies); prescutellars relatively short,  $PS/PD = 0.55$  ( $0.61$  in *pallida*;  $0.56$ – $0.74$  in other species); abdominal color pattern similar to that of *pallida*, except that median spot on tergite IV much darker.

COMMENTS: This female is definitely not *floridana* or *dominica*, since the females of those species are known, and it is distinctly different externally from *pictiventris*. I hesitate to describe the specimen as a new species because of its similarity to *pallida*, and because species-level systematics can be complicated by descriptions of isolated females when the species concepts are largely defined on the basis of male genitalic morphology.

#### AMBER SPECIES

##### *Hyalistata vitrea*, new species

Figures 7, 8

DIAGNOSIS: Autapomorphic for genus: ocellar setae minute, postocellar setae very small; a third, dorsal, notopleural seta lacking; anterior dorsocentral setae very small; tergites IV and V each with 3 dark spots. Plesiomorphic to living species: prescutellar acrostichal setae small; row of stout, black setae on midfemur absent; "hair seams" on mid and hind tarsi absent; katepisternum with 2 setae of equal size (1 is not extremely long).

DESCRIPTION: Head: Eyes large, bare, apparently reddish in actual life (left eye collapsed). Frons relatively narrow ( $FrW/HD = 0.31$ ), light, yellowish; ocellar triangle black; ocellar setae minute [barely discernible, best seen in lateral view]. Postocellars very small, ca.  $0.3 \times$  size of frontal-orbital setae, cruciate for  $0.5 \times$  their length. Inner vertical setae long, parallel, and reclinate; outer verticals apparently strongly divergent and laterocline [difficult to determine, setae slightly displaced]. Ipsilateral frontal orbital setae directly in line with each other; procline orbital and anterior reclinate separated by distance about equal to diameter of socket at base. Anterior reclinate orbital seta midway along length of frons; posterior reclinate midway between ipsilateral ant. reclinate and inner vertical. Frontal view of face and view of labellum obscured by depth of amber and large bubble coming out of mouth. 1 pair vibrissae present. Arista pubescent, length of pubescence ca.  $3 \times$  width of arisal trunk. Arista ca.  $3 \times$  length of flagellomere I.

Thorax: Pleura, notum, scutellum, and legs unicolorous yellow-ochre. Katepisternum with 2 setae of equal size, equidistant from dorsal edge of katepisternum, ca.  $0.7 \times$  length of setae in living species. Postpronotal lobe with 1 large seta; notopleural suture with 2 large setae, but no dorsal one above these; 2 long supra-alar setae, with only 1 short one immediately anterior to ant. supra-alar. Acrostichal setulae not arranged in rows; prescutellar acrostichals relatively short, distinctively shorter than in any living species,  $PS/PD = 0.46$  (vs.  $0.55$ – $0.74$  in living species). Anterior dorsocentrals relatively short, slightly larger than acrostichals,  $AD/PD = 0.35$  (vs.  $0.42$ – $0.54$  in living species). Posterior dorsocentrals strongly convergent (almost touching).

Wings completely hyaline, with features as described for living species. Halter mostly yellowish, with dark disc on apical surface. Legs: Forefemur without ctenidium. Midfemur without lateral row of stout, black setae; apex with thin, curved setae; midfemoral-tibial joint with deep ventral notch, but small flange. Mid and hind tarsi lacking hair seams. Apex of midtibia with row of 4 short, stout black setae between 2 large, stout setae; a small dorsal, apical setae present.

Abdomen: Tergites I–III completely yellow; IV and V each with 3 black spots; epandrium yellow. Male genitalia partly protruding, with portion of distiphallus exposed, as figured (fig. 8). Surstyli and prensisetae not visible.

TYPE: Holotype: Male, DOMINICAN REPUBLIC [amber], presumably from mines in El Valle region. AMNH DR-3-24. The amber is clear, bright yellow, originally in an ovoid shape but then sliced and polished into a thin section so that both sides of the fly could be observed.

ETYMOLOGY: From the Latin term for "glass," referring to the preservation of the species in amber.

COMMENTS: Organic solvents (ether, chloroform, ethanol) applied to the barren fragments did not make the surface tacky, which occurs with the much younger, incompletely polymerized fossil resins from the Cordillera Oriental in the Dominican Republic (versus the Cordillera Septentrional, where the older amber comes from). Unfortunately, the stratigraphy of the eastern mines is even more

poorly known than that of the western mines. Material from El Valle is distinctly different from that of the Bayaguana area, some 50 km southwest (specifically, Comatillo and Sierra de Agua, where I acquired various samples, which are distinctly softer, lighter, and less polymerized). Thus, this specimen is not in

copal, but an age less tentative than lower Miocene isn't possible at this point. The species is undoubtedly plesiomorphic to the five living species, based on the lack of a row of stout setae on the midfemur and a lack of hair seams on the mid and hind tarsi.

TABLE 1  
*Hyalistata* Measurements, in millimeters

Specimen	PS	FrW	HW	HD	FaD	ThL	AD	PD
<i>dominica</i> HT	0.54	0.25	1.03	0.81	0.34	1.54	0.37	0.77
<i>dominica</i> PT	0.62	0.27	1.08	0.86	0.34	—	0.46	0.83
<i>floridana</i> PT	—	0.28	1.10	0.89	0.37	1.71	0.38	0.74
<i>floridana</i> HT	0.41	0.28	1.06	0.87	0.37	1.73	0.35	0.65
<i>mexicoa</i> HT	0.42	0.26	0.96	0.82	0.33	1.51	0.37	0.68
<i>pallida</i> HT	0.33	0.13	0.73	0.74	0.30	—	0.23	0.53
<i>pallida</i> PT	0.33	0.17	0.81	0.72	0.29	—	0.24	0.55
<i>pictivent</i> HT	0.35	0.25	0.93	0.76	0.32	1.36	0.27	0.62
<i>vitrea</i>	0.31	0.28	—	0.93	—	1.60	0.24	0.67
Colombian sp.	0.31	0.19	0.75	0.73	0.31	—	0.24	0.56

D: depth; Fa: face; Fr: frons; H: head; Th: thorax; W: width; L: length; AD: anterior dorsocentral seta length; PD: post. dorsocentral length; PS: prescutellar seta length.

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