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TWO NEW GENERA AND THREE NEW SPECIES OF EUPLECTRINI (HYMENOPTERA: EULOPHIDAE) FROM THE NEW WORLD

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Abstract.—Two new genera (***Alveoplectrus***, type species *A. floridanus* W. & S. and ***Eurycephaloplectrus***, type species *E. columbianus* W. & S.) and three new species (***A. floridanus, A. truncatus***, and ***E. columbianus***) of the tribe Euplectrini (Hymenoptera: Eulophidae) are described. *Euplectrus corumbae* Ashmead is reclassified *Alveoplectrus corumbae* (Ashmead) **comb. n.** *Alveoplectrus floridanus* is a parasite of the larvae of *Alarodia slossoniae* (Lepidoptera: Limacodidae). *Eurycephaloplectrus colombianus* is parasitic on larvae of *Sibine* sp. (Lepidoptera: Limacodidae). The two genera are closely related and share some synapomorphies with the mainly Old World genus *Platyplectrus*.

Key Words: Chalcidoidea, Eulophidae, New World, *Alveoplectrus, Eurycephaloplectrus, Alarodia, Sibine*, parasites, Limacodidae

The tribe Euplectrini is unique within Eulophinae being the only cocoon weaving ectoparasites. Species in Euplectrini are united by the possession of an elongate hind tibial spur. This character has been observed to be somewhat variable. For example, the euplectrine genus *Metaplectrus* Ferrière has a relatively short hind tibial spur, and it appears very similar to the genus *Euplectrophelinus* Girault (J. LaSalle personal communication), which is not placed in the Euplectrini. In the absence of a thorough phylogenetic analysis of all the included genera, we continue to define Euplectrini based on this tibial spur character. Members of the tribe are distributed mainly in the Old World tropics, although species of *Euplectrus* Westwood are found worldwide. The tribe consists of six genera of which only two, *Euplectrus* and *Platyplectrus* Ferrière, are known to occur in the New World (Bouček 1988). The tribe is represented in North America by 13 species of *Euplectrus* (Burks 1979) and a single species of *Platyplectrus* (Schauff and LaSalle 1993). In our study on Sri Lankan Euplectrini we reported specimens of *Euplectromorpha* Girault from the New World (Wijesekara and Schauff 1994). Although these specimens possess two submedian carinae on the propodeum, the defining characteristic of *Euplectromorpha,* further analysis led us to conclude that these species are not properly placed in *Euplectromorpha.* In this paper, we erect two new genera for these species.

Museum abbreviations are as follows: National Museum of Natural History, Washington, D.C. (USNM); The Natural History Museum, London (BMNH). Terminology for surface sculpture follows Harris (1979).

Bouček (1988) produced a key to the genera of Euplectrini. His key is modified

to include our new genera. *Awara* Bouček (1988) is not included in this key as it does not properly belong in the Euplectrini (Z. Bouček and J. LaSalle, in litt.).

Key to the World Genera of Euplectrini

1. Propodeum with single median carina posterior to basal cup (Fig. 13) 2
– Propodeum with two submedian carinae; median carina lacking (Figs. 2, 6, 12, 14) 5
2. Scutellum without sublateral groove (as in Fig. 10); pronotum with transverse carina . . . . . *Euplectrus* Westwood
– Scutellum with distinct sublateral groove (Figs. 5, 13, 14); pronotum variable 3
3. Hind tibia with a single, relatively short, apical spur; hind basitarsus subequal in length to second tarsomere . . . . . *Metaplectrus* Ferrière
– Hind tibia with 2 distinctly elongate apical spurs; hind basitarsus much longer than second tarsomere 4
4. Submedian area of propodeum divided into more than four areolae; first tergum as long as half the length of metasoma . . . *Aroplectrus* Lin
– Propodeum with undivided submedian area; first tergum of metasoma variable . . . . . *Platyplectrus* Ferrière
5. Scutellum without sublateral groove (Fig. 10); head relatively broad, more than 1.6× wider than high; petiole distinct, plate-like in dorsal view (Fig. 12) . . . . . *Eurycephaloplectrus*, new genus
– Scutellum with distinct sublateral groove (Fig. 5); head less than 1.5× wider than high; petiole transverse, not visible dorsally 6
6. Scutellum with sublateral groove broad, contiguous with the posterior margin (Fig. 5); hind tibia with a single elongate spur (Fig. 7); hind tibial apex projected beyond point of attachment of basitarsus (Fig. 7); head with distinct tentorial depression lateral to clypeus (Fig. 4); postoccipital carina present (Fig. 1); species predominantly brownish in color . . . . . *Alveoplectrus*, new genus
– Scutellum with sublateral groove narrow, not contiguous with the posterior margin (Fig. 14); hind tibia with one or two spurs; hind tibial apex not extended beyond point of tarsal attachment; head without facial depressions adjacent to clypeus; species including their appendages yellowish in color . . . . . *Euplectromorpha* Girault

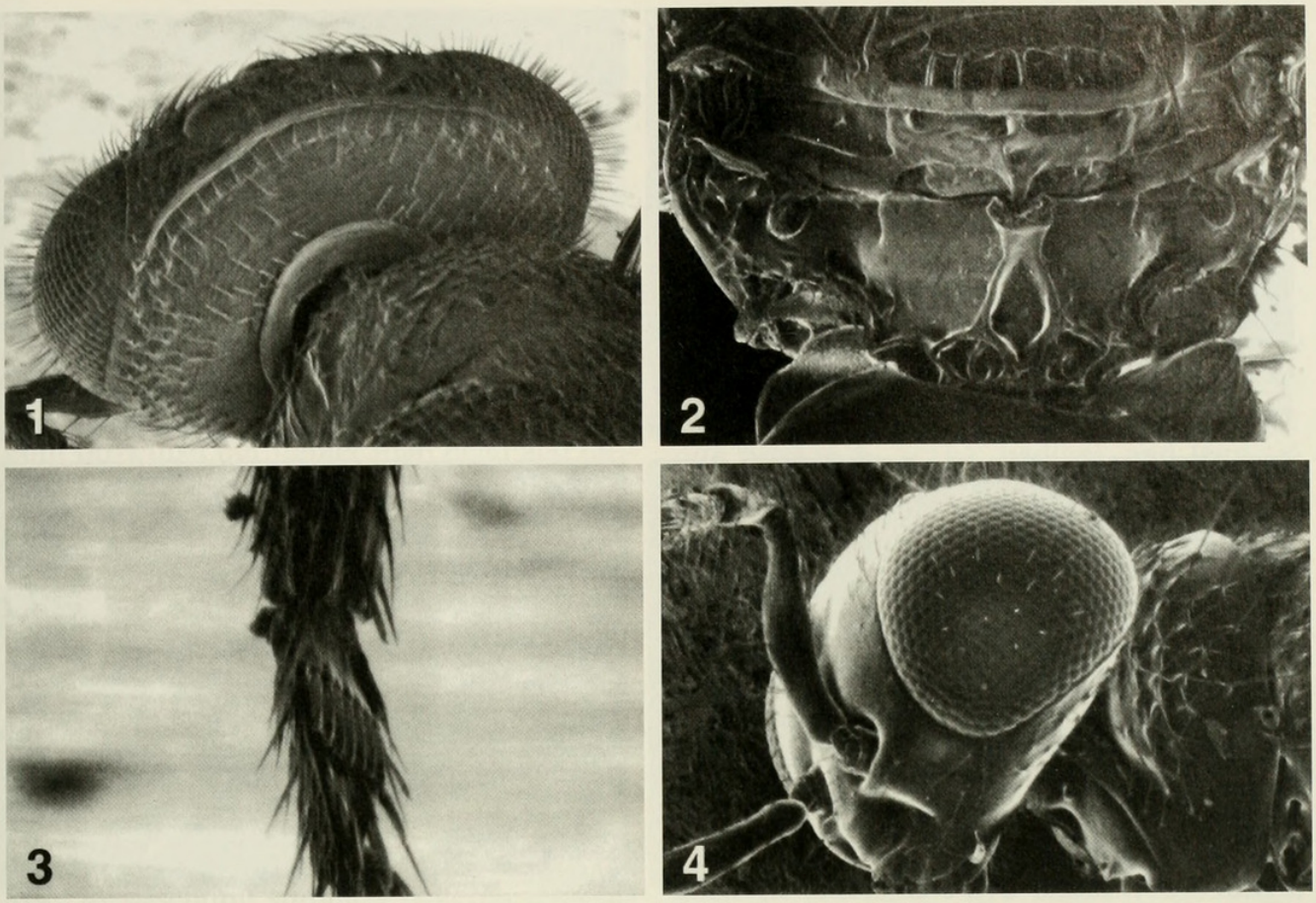
Alveoplectrus Wijesekara and Schauff, new genus

(Figs. 1–8, 15, 16)

Type Species: *Alveoplectrus floridanus* Wijesekara and Schauff.

Diagnosis.—Female with distinct tentorial depression on face near lateral margin of clypeus (Fig. 4); postoccipital carina present (Fig. 1); forebasitarsus with distinct strigil (Fig. 3); scutellum with sublateral groves which continue along the posterior margin (Fig. 5); mesepimeron with a distinct pit located closer to the posterior margin; dorsellum with posteriorly directed cup-like carina (Fig. 6); propodeum with two sublateral carinae that diverge posteriorly as a narrow triangle originating from basal cup (Figs. 2, 6); hind leg with single tibial spur which is as long as first two tarsomeres together; hind tibial margin extended beyond tarsal attachment point (Fig. 7).

Description.—Female. Compound eye with numerous long silvery setae; malar suture present; clypeus distinct but not demarcated by supraclypeal suture (Fig. 4); face convex; postoccipital carina present; POL 1.5× longer than OOL; frons and vertex uniformly covered with setae; occipital area flat compared to concave occiput of *Platyplectrus*, with scattered setae; mandibles reduced, not meeting medially and without teeth; first funicular segment and clava distinctly longer than other segment (Figs. 15, 16); scape not reaching level of anterior ocellus; pronotum uniformly covered with setae, without transverse carina; mesoscutum similarly covered with setae; axilla smooth, without setae; sublateral scutellar grooves contiguous along posterior margin of scutellum; mesepimeron with a distinct pit close to posterior mesopleural margin (Fig. 8); dorsellum medially with carina in form of posteriorly directed cup (Fig. 6); propodeum with two submedian carinae (Figs. 2, 6); petiole transverse; metasoma longer than broad, first tergum covering more than half length of metasoma;

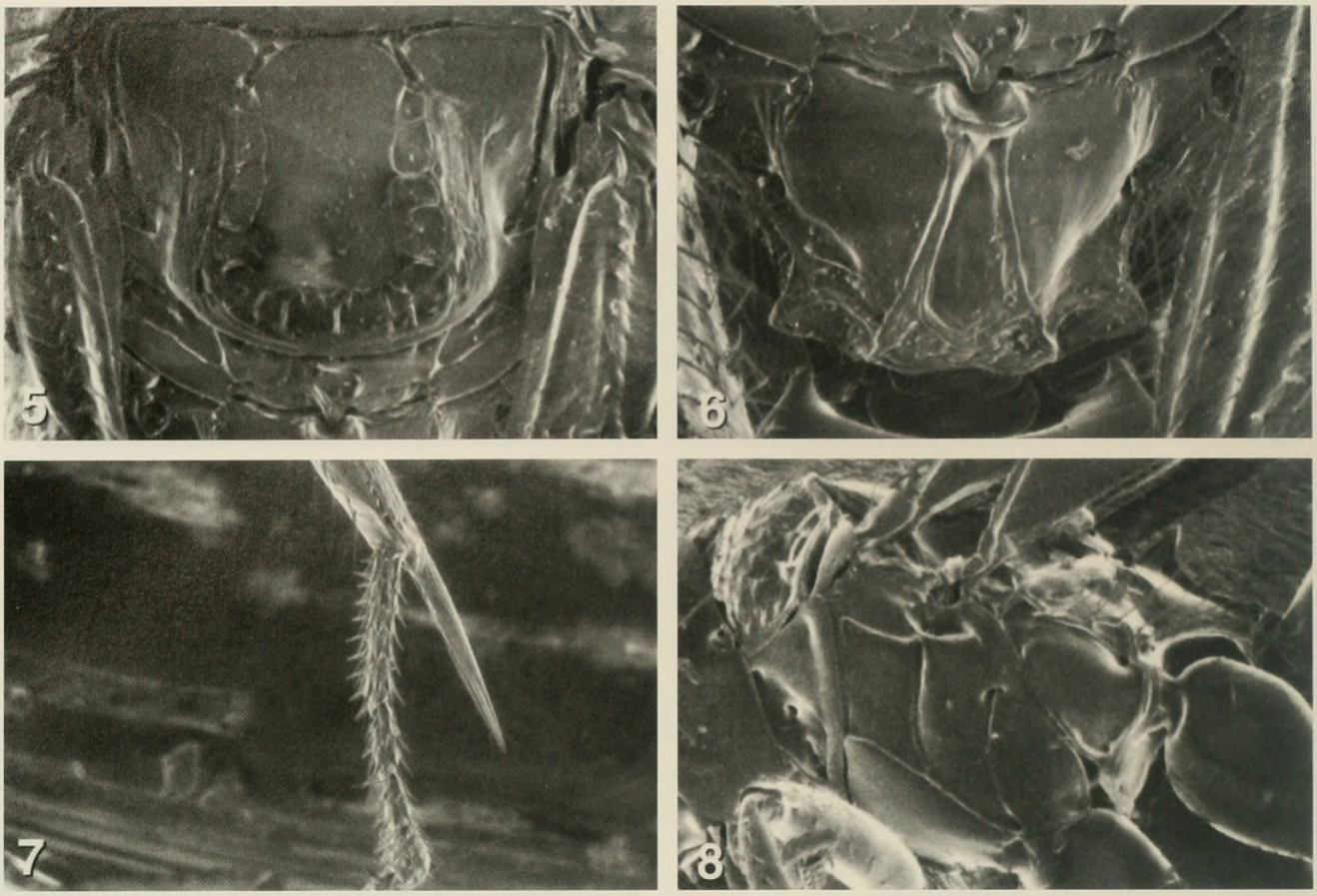


Figs. 1–4. 1–3, *Alveoplectrus floridanus*. 1, Head, posterior view. 2, Dorsellum and propodeum. 3, Strigil. 4, *A. truncatus*, head.

forebasitarsus with distinct strigil (Fig. 3); hind tibia with a single elongate spur; apical margin of hind tibia elongate beyond point of tarsal attachment (Fig. 7); hind basitarsus longer than following tarsomeres.

Discussion.—This genus can be distinguished from *Euplectromorpha* and *Platyplectrus* by the presence of the anterior tentorial depression, extended hind tibial margin, and cuplike median carina of the dorsellum. In both *Euplectromorpha* and *Platyplectrus* the dorsellum does not possess a cup-like carina, being either smooth in most species or irregularly carinated (few *Platyplectrus*), and their hind tibial margin does not extend beyond tarsal attachment point. The clypeal area is smooth with no demarcations or depressions in *Euplectromorpha*, whereas in *Platyplectrus* distinct supraclypeal carinae demarcate the clypeus, and there is no distinct depression near the tentorial pits.

The single hind tibial spur in *Alveoplectrus* is very distinct. Bouček (1988) considered the presence of a single tibial spur as a good generic character to identify *Metaplectrus* but we have observed some variation among other species. For example, *Euplectromorpha jamburaliyaensis* has a single hind tibial spur, although most *Euplectromorpha* species have two hind tibial spurs (Wijesekara and Schauff 1994). Based on this, we treat this character as homoplasious within the tribe. The presence of two submedian carinae on the propodeum has been regarded as autapomorphic for *Euplectromorpha* but is also characteristic of the two new genera. *Euplectromorpha* differs from *Alveoplectrus* by having fine lateral furrows on the scutellum



Figs. 5–8. *Alveoplectrus truncatus*. 5, Scutellum. 6, Dorsellum and propodeum. 7, Hindtibial spur. 8, Mesepimeron.

which are not posteriorly contiguous, and lacking postoccipital and pronotal carinae and posterior pit of the mesepimeron.

In all three species of *Alveoplectrus* the occipital carina is very distinctly developed as in some *Platyplectrus*, but we consider this character to be variable, as we also have examined single specimens of three additional undescribed species of *Alveoplectrus* from Central and South America, two of which do not possess the occipital carina.

The relationship of *Alveoplectrus* to other Euplectrini is difficult to assess. Overall, species of *Alveoplectrus* appear similar to those of *Platyplectrus*, and the posteriorly contiguous lateral carina on the scutellum, setaceous head, pronotum and mesonotum, and distinct strigil suggest a close relationship with that genus. In addition presence of a distinct pit on the mesepimeron closer to the posterior margin of the mesopleuron also suggest a closer relationship to *Platyplectrus*. Sharing of similar propodeal carinae by *Alveoplectrus* and *Euplectromorpha* is probably homoplasious.

Etymology.—"Alveo" comes from Latin "alveus" meaning cavity, and refers to the depressions on the face of species in the genus.

Key to the Species of *Alveoplectrus*

1. Mesepimeron divided by transverse sulcus (Fig. 8); frons below anterior ocellus without a transverse carinae 2
– Mesepimeron not divided by a sulcus; frons below anterior ocellus with short transverse carinae . . . . . *.corumbae* (Ashmead)
2. Antennal clava truncated; distal 3 flagellomeres distinct from others being whitish; occipital carinae without a lamina; posterior end of propodeum lacks alveole . . *.truncatus*, new species
– Antennal clava slightly asymetrical, not distinctly truncated; all flagellomeres same color; occipital carinae with a lamina; posterior end of propodeum with lateral alveoli . . . . . *floridanus*, new species

Alveoplectrus floridanus Wijesekara and Schauff, new species

(Figs. 1–3, 15)

Female.—Length 1.2–2.0 mm. *Color:* Head and mesosoma dark honey brown, antenna, legs except hind coxa, petiole, and metasoma except small area along lateral margin of first tergum yellow; hind coxa, petiole, and posterior lateral area of first tergum brownish but lighter than head and mesosoma. *Head:* Width 1.2× height; interocellar distance 2.5× eye width; frons and vertex evenly covered with short white setae; occipital and postoccipital carinae present (Fig. 1); POL:OOL 5:3; antennal clava slightly asymmetric; single anellus present; first funicular segment 1.2× longer than remaining funicular segments, which are subequal in length (Fig. 15). *Mesosoma:* Pronotum rectangular, collarlike, uniformly setose; mesoscutum similarly covered with setae; scutellum sculpture asperous; scutellum longer than broad with distinct lateral furrows contiguous with posterior margin; axilla smooth; mesepimeron divided into lower and upper mesepimeron by transverse sulcus terminating as a pit close to posterior mesopleural margin; propodeum smooth with two posteriorly diverging submedian carinae joining posteriorly with two lateral alveoli (Fig. 2). *Metasoma:* Longer than broad, petiole transverse, not visible from dorsal side; first tergum covers more than half metasomal length. *Legs and wings:* Hind coxa smooth; hind basitarsus 2× longer than remaining tarsomeres; forewing with postmarginal vein longer than stigmal vein.

Male.–Unknown.

Host.–Larvae of *Alarodia slossoniae* (Lepidoptera: Limacodidae).

Distribution.–Florida, Monroe Co.

Types.–Holotype ♀ on point with data: Florida, Monroe Co., Crane Key, 16-IV-76. Coll. D. Simberloff, ex. larvae *Alarodia slossoniae* (USNM). Paratypes: same data as holotype. (2 ♀ USNM, 1 ♀ BMNH).

Etymology.–The species epithet refers to the type locality.

Alveoplectrus truncatus Wijesekara and Schauff, new species

(Figs. 4–8, 16)

Female.—Length 1.7–2.0 mm. *Color:* head and mesosoma dark honey brown to black; first three funicular segments, coxae, and metasoma except lateral part of first tergite brownish; scape, pedicel, and legs except coxae yellowish; apical part of mid and hind femora and tibiae honey colored; antennal clava, fourth funicular, dorsal and ventral surface of first metasomal tergum whitish. *Head:* Width 1.2 × height; interocular distance 2× eye width; occipital and postoccipital carinae present; POL:OOL 7:4; first funicular segment 1.5× longer than second funicular segment; funicular segments becoming shorter and broader toward apex of antenna; clava about 1.6× longer than the preceding segment and distinctly truncated (Fig. 16). *Mesosoma:* Pronotum rectangular and covered with short brownish setae; mesonotum also covered with similar setae; scutellum and axilla smooth (Fig. 5); mesepisternum and mesepimeron smooth, mesepimeron divided into lower and upper mesepimeron by a transverse sulcus, which terminates as a pit close to posterior mesopleural margin (Fig. 8); propodeum with diverging submedian carinae enclosing a coarse raised median area, otherwise smooth (Fig. 6); posterior margin of propodeum without lateral carinae forming posterior alveole. *Metasoma:* First tergum extending over half of the metasoma. *Legs and wings:* Hind coxa smooth; single elongate hind tibial spur as long as first two tarsal segments together; hind basitarsus 2× longer than second tarsomere; postmarginal vein longer than stigmal vein.

Male.—Unknown.

Hosts.—Unknown.

Distribution.—Costa Rica.

Types.—Holotype ♀ on point with data: Costa Rica, Puntarenas, Golfo Dulce 3 Km.

W. Piedras Blancas, 100m. 3-V-1989 coll. Hanson (BMNH). Paratypes: same data as holotype (1 ♀ USNM); Costa Rica, Puntarenas, Gulfo Dulce 3 Km. S. Rincon, 10m. 2-III-1989. coll Hanson (2 ♀) Costa Rica, Heredia, Chilamate 75m. XII-1989, III-1990, Hanson and Godoy (1 ♀), (BMNH).

Etymology.—The species epithet refers to the truncated clava of the antenna.

Alveoplectrus corumbae (Ashmead), **new combination**

Euplectrus corumbae Ashmead, 1904: 517. Holotype ♀: Brazil, Corumba, H. H. Smith (USNM 60572).

Female diagnosis.—Head, mesosoma, and metasoma excluding the dorsum of the first tergum honey brown; legs yellow; antennal clava, third and fourth funicular segments brownish with a short transverse carinae just below anterior ocellus; posterior margin of dorsal axiller surface with distinct projection over scutoscutellar suture toward scutellum; basal cup of the propodeum enlarged, with a laminated margin; mesepimeron not divided into two parts by a sulcus.

Discussion.—*Alveoplectrus corumbae* can be easily distinguished from the *Alveoplectrus* species described above by the presence of distinct projections of the posterior margin of axilla (straight in *A. floridanus* and without any projection in *A. truncatus*), reticulate sculpture of the scutellum (smooth and asprous in *A. floridanus* and *A. truncatus*) and lack of a sulcus on mesepimeron dividing it into two parts (divided into upper and lower mesepimeron by a sulcus in both *A. floridanus* and *A. truncatus* (Fig. 8)).

Alveoplectrus corumbae was described by Ashmead (1904) from a single female specimen (USNM type no. 60572, examined). Vidal Sarmiento and DeSantis (1979) described a male of *A. corumbae* reared from *Spodoptera frugiperda* (J. E. Smith) (Noctuidae) as "allotype".

Eurycephaloplectrus **Wijesekara and Schauff, new genus**

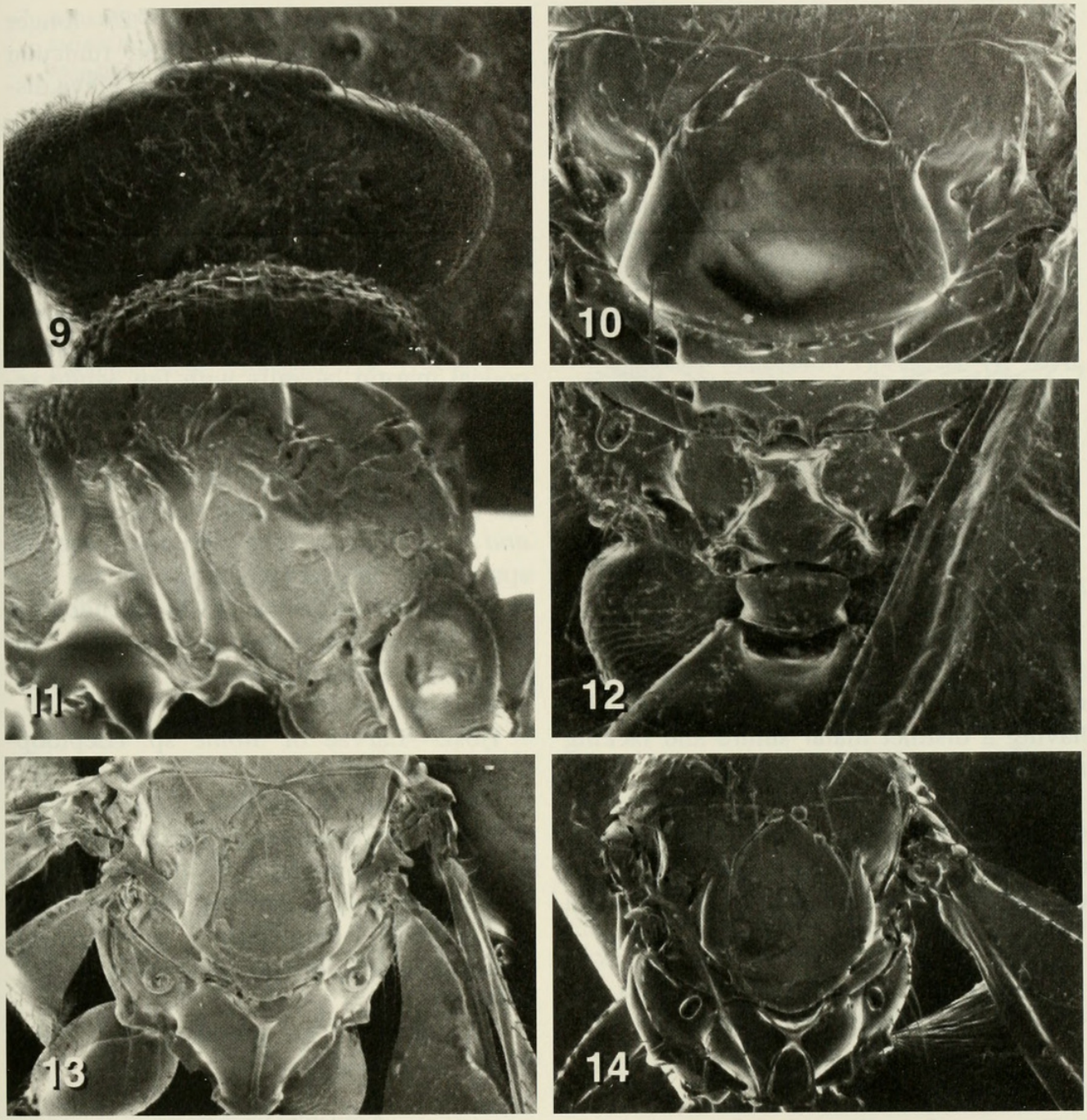
(Figs. 9–12)

Type species: *Eurycephaloplectrus colombianus* Wijesekara and Schauff.

Diagnosis.—Female head distinctly broader than high; occiput concave; head, pronotum and mesoscutum uniformly setose; scutellum smooth without lateral furrows and with two anteriorly contiguous distinct alveoli separating scutellum from axillae (Fig. 10); propodeum with posteriorly diverging submedian carinae which originate from basal cup separately; median carina absent (Fig. 12); petiole wider than long and distinctly visible dorsally, dorsal surface smooth and expanded like a plate (Fig. 12); abdomen shorter than mesosoma.

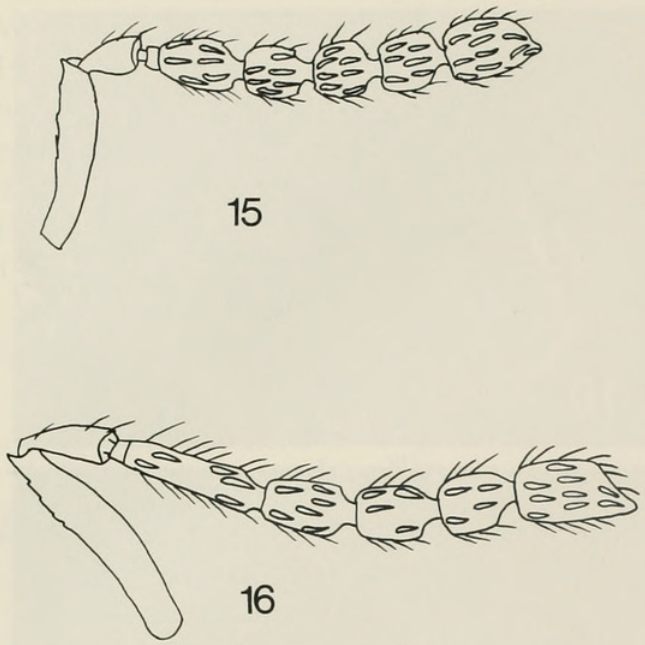
Description.—Female. Head more than 1.6× as broad as high; vertex and occiput uniformly covered with short setae; eye densely ciliated; malar sulcus distinct; clypeus not differentiated; occipital area concave; antennal scrobe distinctly marked; scape not reaching level of anterior ocellus. Pronotum and mesoscutum uniformly covered with short setae; axilla and scutellum smooth; distinct alveoli between scutellum and axilla; scutellum without lateral furrow; each axilla with two pairs of short setae (Fig. 10); mesepimeron with distinct pit near posterior margin (Fig. 11); dorsellum smooth; propodeum with two posteriorly diverging submedian carinae, which reach posterior margin of propodeum between abdomen and coxal foramina, closer to plica, making broader angle near basal cup when compared to *Alveoplectrus* (Fig. 12); petiole broader than long, platelike, and visible in dorsal view; metasoma shorter than mesosoma; strigil of fore basitarsus not distinct; hind tibia with two elongate spurs.

Discussion.—*Eurycephaloplectrus* is closely related to *Alveoplectrus*. The synapomorphies for this relationship are 1) uniformly ciliated head, pronotum, and mesonotum and 2) basally separated submedian



Figs. 9–14. 9–12. *Eurycephaloplectrus colombianus*. 9, Head, posterior view. 10, Scutellum. 11, Mesepimeron. 12, Dorsellum, propodeum, and petiole. 13, *Platyplectrus* sp., dorsum. 14, *Euplectromorpha* sp., dorsum.

carina on the propodeum. The distinct pit close to the posterior margin of the mesepimeron is similar to the state found in *Platyplectrus* and is considered homologous to the similar structure in *Alveoplectrus*. However this genus differs from *Alveoplectrus* in lack of sublateral scutellar furrows, absence of a distinct depression on the face lateral to clypeus; lack of an elongate strigil; presence of two pairs of setae on each axilla; presence of a dorsally expanded petiole; and presence of two hind tibial spurs. Species of *Alveoplectrus* possess distinct depressions lateral to the clypeus, posteriorly contiguous sublateral furrows on the scutellum, distinct strigil, no setae on axilla, transverse petiole, and a single hind tibial spur. *Eurycephaloplectrus* is



Figs. 15–16. Female antenna. 15, *Alveoplectrus floridanus*. 16, *A. truncatus*.

similar to *Euplectrus* in lacking lateral furrows on the scutellum but differs from it by having a distinct malar suture and lacking a median carina on the propodeum.

Etymology.—"Eurys" meaning broad and "cephalo" meaning head (both Greek) together refer to distinctly broad head of this genus, and is combined with the stem "plectrus".

Eurycephaloplectrus colombianus Wijesekara and Schauff, new species

(Figs. 9–12)

Female.—Length: 1.4–1.5 mm. *Color:* Head, ventral and lateral mesosoma, hind coxa, and petiole honey brown; mesosoma dorsally much darker than head, almost black; metasoma except anterior dorsal area, fore and hind coxae and hind femur light brown; antennae, legs except all coxae and hind femur and anterior dorsal area of metasoma yellow. *Head:* Width 1.6× height; interocular distance 2.5× eye width; mouth margin broad; antennal scrobe distinctly depressed; vertex and occipital area uniformly covered with setae; eye densely setose; occipital and postoccipital carina absent (Fig. 9); POL:OOL 9:7; occiput concave; first funicular segment 1.2× longer than second funicular segment; funicular segments 2–4 subequal in length; clava distinctly longer than funicular segments. *Mesosoma:* Pronotum collarlike and uniformly setose (Fig. 9); mesoscutum covered with similar white setae; mesepimeron not divided (Fig. 11); dorsellum and propodeum smooth; basal cup distinctly developed; two submedian carinae originate separately from basal cup and diverge posteriorly; propodeal margin laterally with few white setae (Fig. 12). *Metasoma:* Petiole smooth, broader than long; dorsal surface of petiole distinctly expanded and plate-like; metasoma distinctly shorter than mesosoma. *Legs and wings:* hind tibia with two elongate spurs; hind basitarsus slightly longer than other tarsomeres; wings at rest extended beyond apex of metasoma; postmarginal vein longer than stigmal vein.

Male.—Unknown.

Host.—Larvae of *Sibine* sp. (Lepidoptera: Limacodidae).

Distribution.—Colombia, Tibaitata.

Types.—Holotype ♀ on point with data: Colombia, Tibityata, 21-VIII-1974, Coll. J.A. Jimenez, "Acacias vet" ex. *Sibine* larvae (USNM). Paratypes; 3 females with same data as holotype (2 ♀ USNM, 1 ♀ BMNH).

Etymology.—The species epithet refers to the type locality.

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