PROC. ENTOMOL. SOC. WASH.
87(1), 1985, pp. 98–109

THE NEW WORLD GENUS *PARACRIAS* ASHMEAD (HYMENOPTERA: EULOPHIDAE)

MICHAEL E. SCHAUFF

Systematic Entomology Laboratory, IIBIII, Agricultural Research Service, USDA, % U.S. National Museum NHB 168, Washington, D.C. 20560.

Abstract.—The species of the New World genus *Paracrias* Ashmead (Hymenoptera: Eulophidae) are revised. Three previously described species are recognized and 3 new species, ***strii, guatemalensis,*** and ***beus,*** are described and illustrated. *Emersonopsis* Girault (1917) is here regarded as a synonym of *Paracrias.* A key to the species is included.

The subfamily Entedontinae (Eulophidae) contains a number of genera of economic importance (e.g. *Pediobius* and *Horismenus*). However, few of these genera have been recently revised and their relationships to one another are poorly understood. *Paracrias* is closely related to both of the genera mentioned above and the known host relationships of the group indicate that these species may also be of potential economic importance.

METHODS

Terminology for surface sculpturing follows Harris (1979). Measurements and ratios were made with a Wild stereomicroscope and eyepiece reticle. The measurements are in microns unless specified otherwise. Lengths and widths of antennal segments and wings were made at their widest and longest points. Gaster, as used here, refers to that portion of the abdomen posterior to the petiole.

Genus *Paracrias* Ashmead

Paracrias Ashmead, 1904. Type-species: *Paracrias laticeps* Ashmead. Orig. desig.
Euplectrentedon Girault, 1917b. Type-species: *Euplectrentedon mirus* Girault. Orig. desig.
Emersonopsis Girault, 1917a. Type-species: *Entedon arizonensis* Ashmead. Orig. desig. NEW SYNONYMY.

Paracrias was described by Ashmead for a single species, *P. laticeps,* from Brazil. Later, Peck (1951) synonymized the monotypic genus *Euplectrentedon* Girault with *Paracrias,* which increased the number of species in the genus to two. Brèthes (1923) described *P. phytomyzae,* which was later transferred to *Euparacrias* by DeSantis (1955). *Emersonopsis* has been separated from *Paracrias* by recent authors (e.g. Burks, 1979), but neither genus has been critically revised. The only character difference that I have been able to find between these genera is that females of *Emersonopsis* have 2 funicle segments and a 3-segmented club, while species of *Paracrias* have a 3-segmented funicle and a 2-segmented club. There

is very little difference between these two conditions and it is often difficult to distinguish a third funicle from the first club segment. As a result, I have proposed the above synonomy.

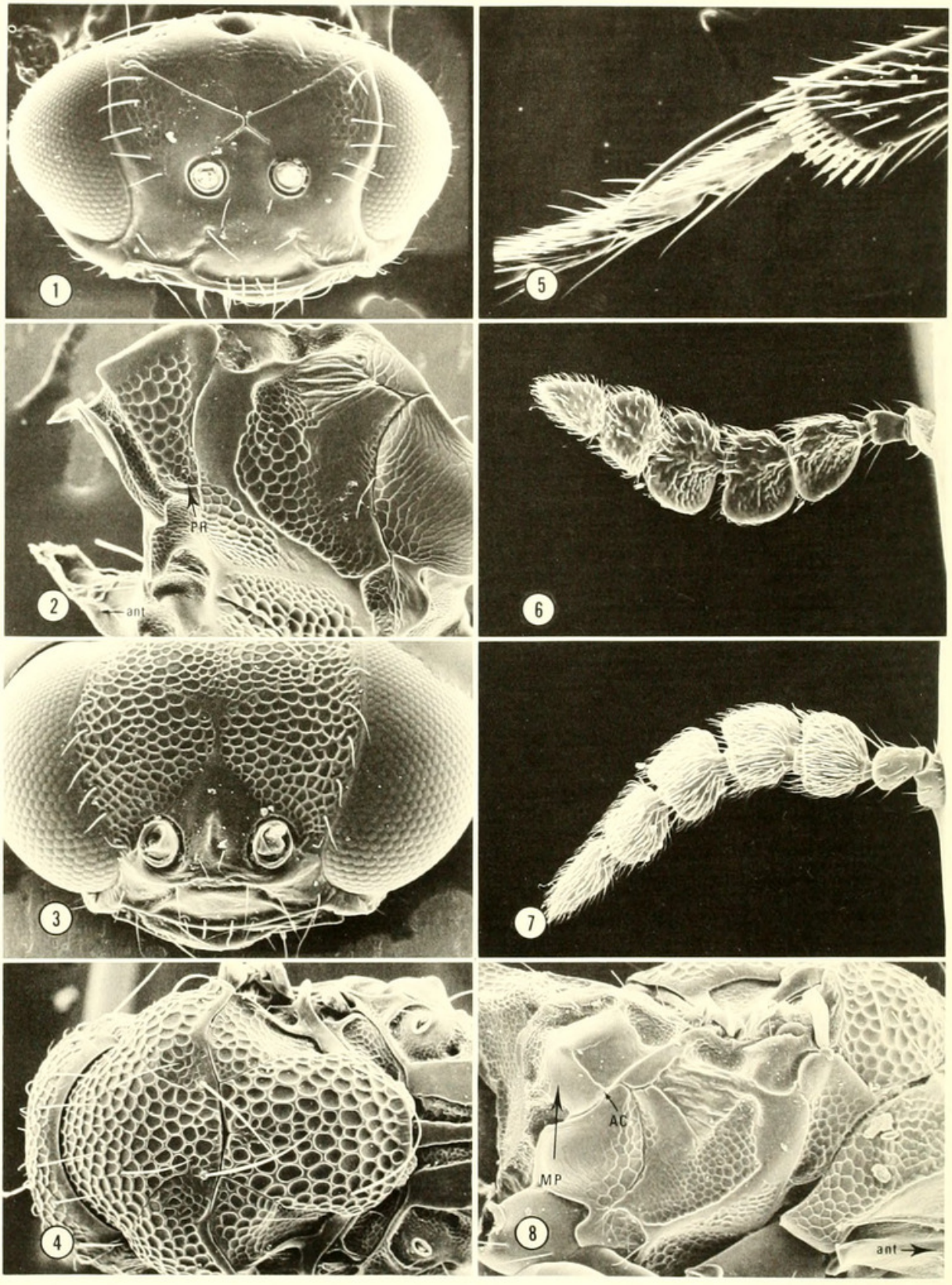
This genus is placed in the subfamily Entedontinae (sensu Burks, 1979). Genera in this subfamily are most easily recognized by the presence of a single pair of scutellar setae. Other eulophids have two or more pairs of scutellar setae.

Paracrias can be separated from other genera of entedontine eulophids by the following characters: head and thorax well sclerotized, not collapsed when dried; scutum and scutellum alveolate (Fig. 4); scrobal grooves united below Y-shaped facial groove (Fig. 1); mandibles with single large tooth (Fig. 14) and smaller second tooth; pronotum without transverse carina; propodeum with sublateral raised smooth area, area around spiracle recessed (Fig. 4); metapleural protuberance with anterolateral carina (Fig. 8); scutellum without median groove (Fig. 4).

Paracrias is considered to be most closely related to *Horismenus* Walker, *Psephenivorus* Burks, and *Edovum* Grissell. These genera possess the same basic Propodeal pattern (Figs. 9, 11, 16), the presence of an anterolateral carina on the metapleural protuberance (carina absent in other genera), and the Y-shaped facial grooves (a character seen in several other related entedontines), and distance between the insertion point of the mid and hindcoxae is much greater than in other genera. Another distinctive feature uniting these genera is the presence of a deep canal-like groove anteriorly on the prepectus (Fig. 2). This groove is concealed by the hind edge of the pronotum. Thus the groove can be seen only in dissected specimens. Ventrally, this may continue as a ridge, which is concealed by the posterior edge of the prosternum and propleura. However, at least some species of *Horismenus* lack the ventral ridge, and in others the canal is interrupted for part of its length. In some of the species of *Paracrias*, the hindtibial spur is enlarged, and subequal or slightly longer than the first tarsomere (Fig. 5), and the setae of the tibial comb are flattened and blunted. However, the degree of development of these tibial spur characters seems to vary continuously and does not appear to be reliable at the generic level.

Paracrias is most easily separated from *Horismenus, Psephenivorus* and related genera by the absence of median or lateral scutellar grooves (present at least anteriorly in most other genera), and the presence of mandibles with a single large tooth and a second much reduced tooth (mandibles with 2 or 3 subequal teeth in others).

The monophyly of *Paracrias* has been difficult to establish, in part, because the generic limits of its closest allies have not been critically assessed. Based on outgroup comparison, many of the thoracic structural differences between *Paracrias* and related genera can only be interpreted as symplesiomorphies in *Paracrias*. Nevertheless, the following features may be used as putative synapomorphies: 1) the clypeus is clearly set off by carinae, sutures, and/or marked differences in sculpturing (in related genera, this area can usually only be distinguished with difficulty if at all, however, this character state is plesiomorphic for the Chalcidoidea as a whole and its value is therefore questionable); 2) there is no transverse pronotal carina (this is present in the other genera, but other entedontine genera also lack a transverse pronotal carina and the value of this character remains in doubt); 3) the mandibles have a single large tooth, with a small second tooth dorsally (other genera have 2 or 3-dentate mandibles and the teeth are about



Figs. 1–8. Scanning electron micrographs of *Paracrias*. 1, Head of *P. mirus*. 2, Thorax of *P. guatemalensis* (lateral view). 3–4, Head and thorax of *P. strii*. 5, Hindtibial spur of *P. mirus*. 6–7, Male antenna of *P. strii*. 8, Thorax of *P. strii* (lateral view) (pr = prepectus; ant = anterior; mp = metapleural protuberance; ac = anterior carina).

equal in size); and 4) the marginal vein is short, being only about equal to the submarginal (related genera have the marginal longer than the submarginal, often twice as long).

Very little is known about the biology of species of *Paracrias*. The two species with known hosts are both parasites of seed infesting weevil larvae (Coleoptera: Curculionidae).

KEY TO NEW WORLD SPECIES OF *PARACRIAS*.

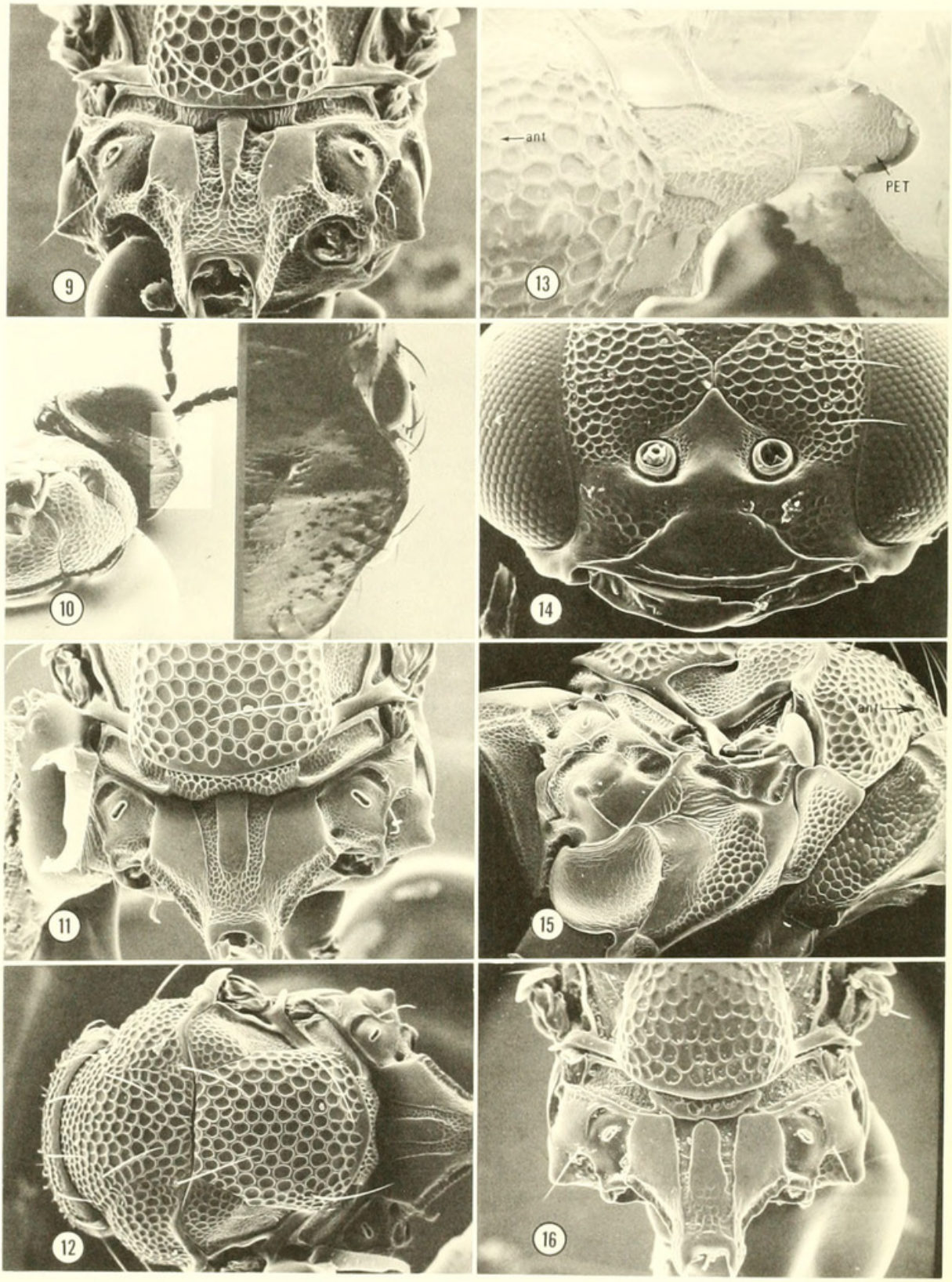
1. Fore and midfemora black or dark metallic blue; occiput sharply margined (Fig. 10) 4
– Fore and midfemora light brown or yellow, at least at tips; occiput rounded 2
2. Facial grooves indicated only by slight changes in sculpturing (Fig. 3); area between toruli swollen; tibiae brown or metallic black medially; male funicles flattened (Figs. 6, 7) ..... *P. strii* Schauff new species
– Facial grooves distinct (Figs. 1, 14, 19); area between toruli flattened or only slightly raised; tibiae concolorous brown or yellow; male funicles cylindrical 3
3. Tibiae yellow; areas directly above and below toruli smooth (Fig. 1); prepectus smooth or only weakly sculptured ..... *P. mirus* (Girault)
– Tibiae brown; areas directly above and below toruli alveolate (Fig. 14); prepectus alveolate medially (Fig. 15) ..... *P. guatemalensis* Schauff new species
4. Propodeal dorsum alveolate medially (Fig. 13); funicle 3-segmented in females; gastral tergum 1 without hair tuft at petiolar insertion ..... *P. laticeps* Ashmead
– Propodeal dorsum with smooth raised median plate (Fig. 17); funicle 2-segmented (Fig. 21) in females; gastral tergum 1 with tuft of hairs at petiolar insertion (Fig. 24) 5
5. Hindcoxa with numerous small silver setae dorsally; scutellum sculpture fading medially; female petiole 2× longer than wide, laterally with small tuft of setae (Fig. 24); wing membrane asetose under proximal section of marginal vein (Fig. 23) ..... *P. beus* Schauff new species
– Hindcoxae bare dorsally; scutellum uniformly alevolate; female petiole quadrate, barely as long as wide, laterally without setal tuft; wing membrane uniformly setose under proximal section of marginal vein (as in Fig. 22) ..... *P. arizonensis* (Ashmead)

Paracrias laticeps Ashmead

Paracrias laticeps Ashmead, 1904: 510.

This species is known only from the types. The lectotype is largely intact, with only pieces of the legs and apical segment of the antennae missing. The paralectotype is missing both antennae and pieces of the wings.

Diagnosis.—This species shares the sharply margined occiput with *P. beus* and *P. arizonensis* (Fig. 10). However, both of the latter species have 2-segmented funicles in the female (3-segmented in *P. laticeps*) and the propodeum has a raised smooth plate medially (Fig. 17) (propodeum evenly alveolate medially in *P. la-*



Figs. 9–16. Scanning electron micrographs of *Paracrias*. 9, Propodeum of *P. strii*. 10, Head and thorax of *P. arizonensis*. 11–12, Propodeum and thorax of *P. guatemalensis*. 13, Propodeum of *P. laticeps*. 14–15, Head and lateral thorax of *P. guatemalensis*. 16, Propodeum of *P. mirus* (ant = anterior; pet = petiole).

ticeps, (Fig. 13)). In addition, the modified hair tufts laterad of the petiolar insertion to the gaster are absent in *P. laticeps* (present in *P. beus* and *P. arizonensis*).

Hosts.—Unknown.

Distribution.—Known only from Brazil.

Types.—Lectotype ♀ (present designation): August, Chapada dos Guimaraes, Brazil H. H. Smith collector. USNM type no. 8096. Paralectotype ♀ with same data, except collected in September.

Paracrias mirus (Girault)

Euplectrentedon mirus Girault, 1917b: 3.

Girault's original description does not mention how many specimens he saw. Only a single female is present in the USNM and type records in Girault's handwriting indicate only one specimen. This specimen is labelled as the type and the label data corresponds with that given in the description. This specimen has had the head removed and mounted on a slide. As with many of Girault's types, the head has been partly smashed, but some details are still discernable. A separate coverslip contains pieces of one antenna and an intact hindleg. The rest of the body of the type was found to have been knocked off its point and most of the mid and hindlegs are missing (some small pieces of each are still imbedded on the original point) as is one forewing and one hindwing. The body has been remounted on a new point, above the original point.

Diagnosis.—This species is unique in having entirely yellow legs (femora and/or tibiae light brown to black in other species). It shares a rounded occiput with *P. strii* and *P. guatemalensis*. *P. strii* has weak facial grooves and a distinct swelling between the toruli (Fig. 3) (grooves well defined and area between toruli more or less flat in *P. mirus* and *P. guatemalensis* (as in Fig. 1). The prepectus is evenly alveolate in *P. guatemalensis* (prepectus smooth in *P. mirus*).

Variation.—Body length varies from 2.6 mm for the largest females to 2.2 mm for smaller males. The thorax and abdomen of the type are considerably darker and less metallic green than the other specimens, although the head does appear metallic. The type also has the sculpturing of the upper frons descending to the top of the facial grooves, while in the other specimens there is a small smooth area directly above the Y.

Hosts.—Reared from *Lignyodes bischoffi* (Blatchley) on green ash, *Fraxinus pennsylvanicus* Marsh; also reared from the seeds of *Fraxinus oregona* Nutt.

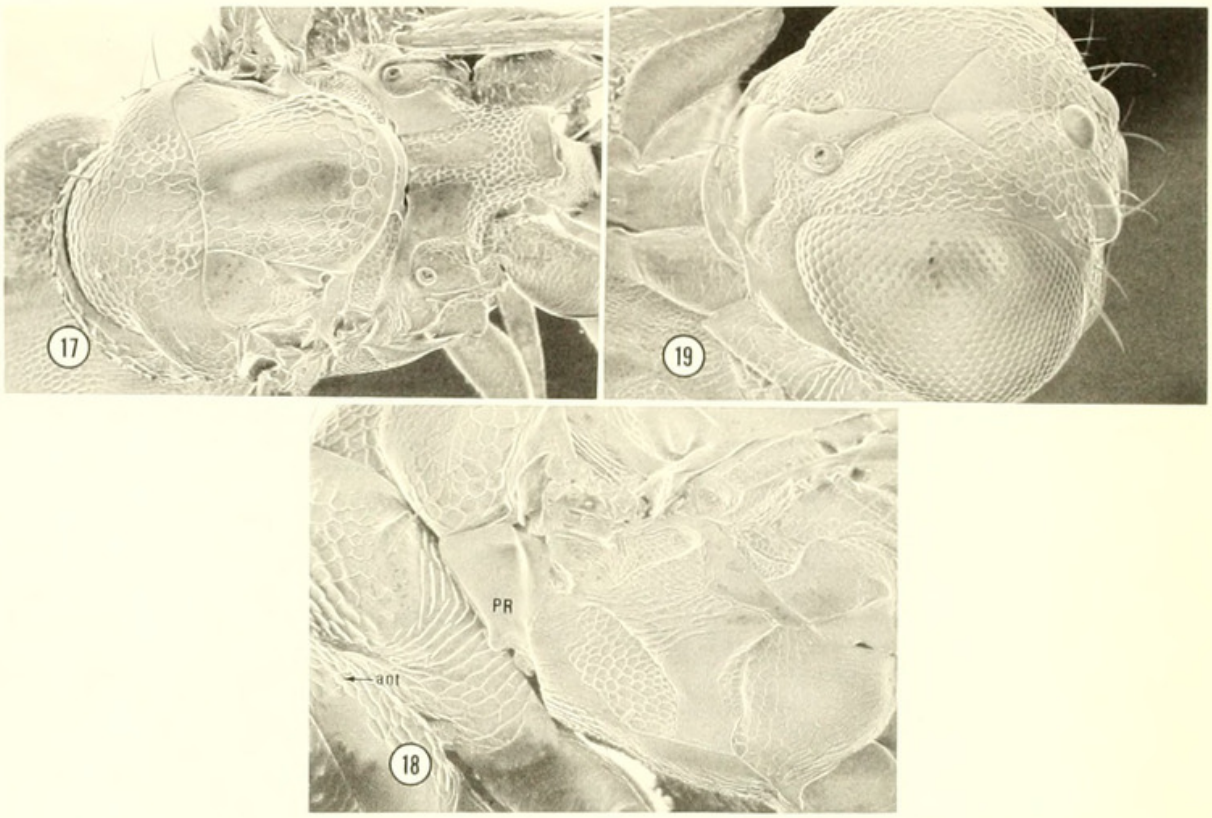
Distribution.—New York, Iowa, Minnesota, and Oregon.

Types.—Holotype ♀, USNM type no. 20437, on point, with data: "Ames, Iowa., 7-31-95, Exp. Sta."

Other specimens examined.—One ♂ and 1 ♀, Syracuse, New York, 3/15/1951 and 4/27/1957, respectively, both reared from ash. One ♀ and 9 ♂ from Ashland, Oregon, April, May and June, 1918 and 1 ♂ 10/2/1916. Reared from *Fraxinus oregona*. Seven ♀ Minnesota, Lac Qui Parle Co., 5 Aug., 1983, reared from *Lignyodes bischoffi* on ash tree by P. Hanson.

Paracrias strii Schauff, New Species

Holotype ♀.—Length 3.2 mm. Color as follows: scape, tips of femora, tibiae, and tarsi yellow; femora medially and tips of tarsi light brown; funicle, fore and



Figs. 17–19. Scanning electron micrographs of *Paracrias beus*. 17, Dorsal thorax. 18, Lateral thorax. 19, Head (pr = prepectus; ant = anterior).

midcoxae dark brown; head, thorax, hindcoxae, and gaster dark metallic green to black or blue; scutum and scutellum tinged with bronze; head width : height 1000: 680, eye margins converging ventrally; frons as in Fig. 3, facial grooves weak, only indicated medially at fork; area between toruli swollen, with a distinct shelf-like carina extending across face below toruli; clypeus smooth, bordered laterally by carinae; malar sulcus present; occiput rounded, minutely alveolate, sculpture fading slightly laterally and dorsally, laterally with small carina extending from the oral cavity parallel to the eye margin and meeting genal carina; antennal length ratio (Fig. 20) (scape, pedicel, F1, F2, F3, club) 378:99:207:135:117:180; thorax as in Figs. 4, 8; exposed prepectus uniformly foveate-reticulate, except dorsal and postero-dorsal margin smooth; scutellum and axillae alveolate; mesosternum interrupted in posterior quarter by lateral carinae which converge, but do not meet, forming a small shelf anterior to the midcoxae, with few scattered setae posteriorly; metapleural protuberance with carina running dorsally from the midpoint (Fig. 8); propodeum (Fig. 9) with median, smooth, raised area which projects forward, bisecting metanotum; sunken spiracular area alveolate, fading to coriaceous medially, spiracular opening elliptic; petiole only slightly longer than wide, rugose to lightly alveolate, with two lateral longitudinal carinae, without lateral setal tuft; gaster ovate elliptic, about 1.5× as long as wide (viewed dorsally), with scattered minute punctures laterally, antero-dorsal margin of tergum 1 without modified setal patch, posterior margin straight; terga laterally with 1 or 2 setae, last 3 terga with 2 or 3 dorsal setae, ovipositor sheaths and sterna smooth; ratio of lengths of femur : tibia : tarsus as follows: foreleg 540:540:360; midleg 630:675:495; hind-

leg 720:720:531 (hindtarsomeres 162:117:99:153); hindtibial spur length subequal to hindtarsomere 1, inner surface of hindcoxae with 4–6 long setae; forewing length:width 2160:830, ratio submarginal : marginal : stigmal 855:765:40, membrane evenly setose under proximal section of marginal vein (Fig. 22).

Allotype.—Generally similar to the ♀, except the following: funicle segments flattened (Figs. 6, 7), ratio length : width F1–F4 180:135; 180:135:189:135; 162:135, outer surface light brown, inner surface metallic copper. Sensilla nearly absent on inner surface, evenly scattered on outer surface; gaster about as long as wide, first tergum covering ¾ of surface.

Variation.—Coloration varies slightly between males and females. In females the face is metallic green, the thorax is largely metallic green dorsally and laterally, becoming bronze colored medially, while the occipital region of the head, pronotum, lateral thorax, and gaster are dark blue to black. Males often have the face darker green or dark violet, the dorsal thorax very dark blue or greenish and nearly black medially. In addition, the size of the median brown area on the tibiae varies slightly and is often smaller and lighter in the males. Sculpturing is quite uniform. However, there is minor variation in the size of the reticulations on the thoracic dorsum, particularly at the posterior margin of the scutum and the antero-medial margin of the scutellum.

Diagnosis.—This species is most easily distinguished by the weak facial grooves (Fig. 3) (grooves well defined in other species (as in Fig. 1)) and the swelling between the toruli (area flat or barely raised in other species). In addition, the propodeum bisects the metanotum medially (Fig. 9), while in other species it either does not reach the metanotum (Fig. 16) or reaches but does not bisect it (Fig. 12).

Hosts.—Unknown.

Distribution.—Known only from Panama.

Types.—Holotype ♀ on point with data: Barro Colorado Island, Canal Zone, X-1937, Ficus fruit, J. A. S. Zetek, no. 4421, lot no. 39-11659. Five ♀ and 10 ♂ paratypes with same data. Deposited in USNM, type no. 101168. Paratypes deposited in British Museum (Natural History) and Canadian National Collection.

Etymology.—This species is named after the Smithsonian Tropical Research Institute on Barro Colorado Island, commonly known by its acronym STRI.

Paracrias guatemalensis Schauff, New Species

Holotype ♀.—Length approximately 4.2 mm; color: scape, tarsi light yellowish brown; funicle, femora, tibiae brown; head, thorax, gaster, coxae dark blue-green to black; scutal dorsum, scutellum tinged with bronze; ratio of head width : height 1044:810, eye margins parallel ventrally; frons as in Fig. 14, facial grooves well defined; toruli slightly sunken, without shelflike carina below; clypeus smooth, bordered laterally by weak carinae; malar space with carina running from edge of oral cavity to genae; occiput rounded, minutely alveolate, sculpture fading slightly at lateral and dorsal edge, laterally with small carina running from above oral cavity parellel to the eye margin and meeting malar carina; antennal length ratio (scape, pedicel, F1, F2, F3, club) 540:144:216:153:135:225; thorax and propodeum as in Figs. 12, 15; exposed prepectus foveate-alveolate, except dorsal and postero-dorsal margin; scutellum and axillae evenly alveolate; mesosternum

interrupted in posterior quarter by two lateral carinae which converge but do not meet, forming a small shelf anterior to the midcoxae, with few scattered setae posteriorly; metapleural protuberance with carina running dorsally from midpoint; propodeum (Fig. 11) with median smooth area which does not bisect metanotum; sunken spiracular area on propodeum alveolate changing to coriaceous medially, spiracle elliptic; petiole about 1.5× as long as wide, smooth, with single small lateral longitudinal carina, without lateral setal tuft; gaster elongate elliptic, about 3× as long as wide (viewed dorsally), smooth, first tergum without antero-dorsal setal clump, posterior margin straight; terga laterally with 3–4 setae, last 3 with 2–4 dorsal setae, ovipositor sheaths and apical sterna weakly imbricate; ratio of lengths of femur : tibia : tarsus as follows: foreleg 630:630:450; midleg 756:810:594; hindleg 936:990:648 (225:135:108:180); hindtibial spur length subequal to first hindtarsus; inner surface of hindcoxae with 6–7 long setae; forewing length : width 2790:1080, ratio submarginal : marginal : stigmal 820:1026:54, membrane evenly setose under proximal section of marginal vein (as in Fig. 22).

Allotype.—Generally similar to the ♀, except the following; scape dark brown, antennal ratio beginning with scape 360:135:198:126:126:126:180.

Variation.—Size ranges from 2.4 mm for males to 4.2 mm for females. Color on the dorsal thorax varies slightly, with the bronze tinge of the scutum and scutellum occasionally subdued and more greenish or blackish laterally, the mesopleuron is occasionally tinged with purple rather than black. The hindtibial spur of the holotype is uniformly yellowish, but some of the paratypes have the apical tip colored brown. Very little structural difference was noted in the specimens available for study. The dorsal mesepisternum in some females is more heavily strigate than in others, and the length of tergum 2 varies from about as long as wide to a narrow transverse band several times wider than long (this is probably largely an artifact of drying). Males have the area laterad of the clypeus more heavily sculptured than the females, two male paratypes show a slight rugosity medially on the clypeus.

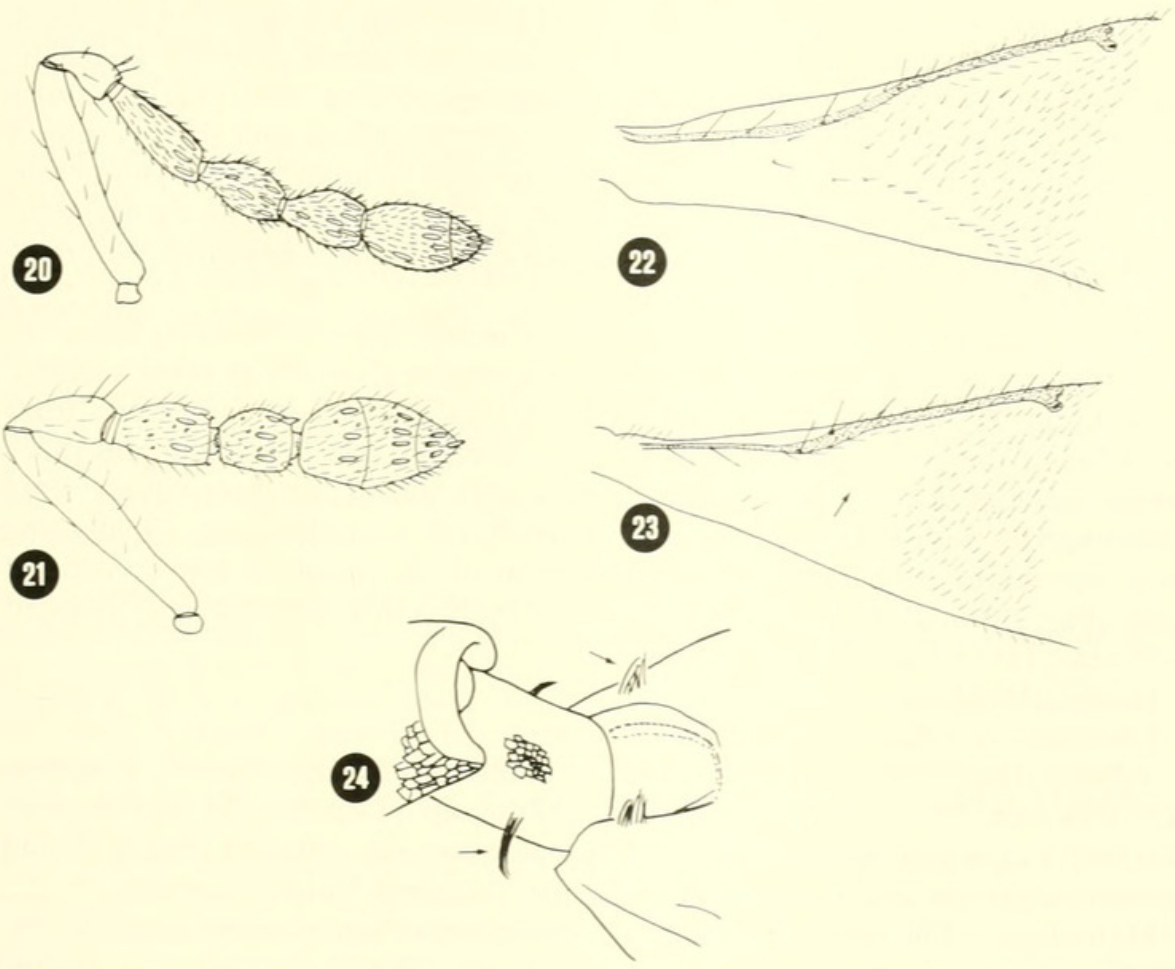
Diagnosis.—This species is most easily confused with *P. strii*, both of which have the mesosternum interrupted posteriorly by carinae which form a small shelf anterior to the midcoxae. They also have a dorsal carina on the metapleural protuberance (Fig. 8). The two species can be separated by the following: facial grooves (Fig. 14) well defined in *P. guatemalensis* (grooves weak in *P. strii* (Fig. 3); area between toruli nearly flat (area swollen in *P. strii*); petiole smooth dorsally (petiole rugose in *P. strii*). This species keys out near *P. mirus*, but the color of the tibiae (yellow in *P. mirus*, brown in *P. guatemalensis*) and the sculpturing of the prepectus (smooth in *P. mirus*, alveolate in *P. guatemalensis* (Fig. 15)) are diagnostic.

Host.—*Conotrachelus perseae* Barber (Curculionidae).

Distribution.—Guatemala.

Types.—Holotype ♀ on point with data: "Guatemala City, coll. Popenoe, Feb., 1918. Iss. at Wash., D.C. by H. S. Baker, FHB 23172, ex. larva of *Conotrachelus* n.sp. (*perseae*)." Paratypes: 17 ♀ and 6 ♂, same data as holotype, except some specify that the parasites were reared from avocado seeds. Deposited in USNM, type no. 101169. Paratypes also deposited in British Museum (Natural History) and Canadian National Collection.

Etymology.—This species is named for the type locality.



Figs. 20–24. 20–21, Female antennae. 20, *P. strii*. 21, *P. beus*. 22–23, Forewings. 22, *P. strii*. 23, *P. beus*. 24, Propodeum and anterior gaster of *P. beus*.

Paracrias beus Schauff, New Species

Holotype ♀.—Length approximately 2.2 mm. Color: first 3 tarsomeres, femoral apices and tibial bases white; rest of body, legs, and antennae dark metallic blue black to black; ratio of head width : height 1440:1116, eye margins converging ventrally; frons as in Fig. 19, facial grooves well defined, toruli slightly sunken, area between and below toruli swollen slightly; clypeus smooth, raised medially, bordered laterally by sulcus; malar space without carina; occiput sharply margined, alveolate, sculpture fading medially and laterally at eye margins, laterally without a carina; antennal ratio (Fig. 23) (scape, pedicel, F1, F2, club) 288:99:117:99:162; thorax and propodeum as in Figs. 17, 18; exposed prepectus smooth; scutellum with alveolate sculpture which fades medially, axillae smooth; mesosternum not interrupted by carina, sloping evenly to midcoxae, with numerous white setae medially and posteriorly; metapleural protuberance without dorsal longitudinal carina; propodeum (Fig. 17) with median smooth area not bisecting metanotum; sunken spiracular area of propodeum weakly coriaceous, spiracle elliptic; petiole 2× as long as wide, minutely alveolate, without lateral carinae, with lateral hair tuft (Fig. 24); gaster ovate elliptic, about 1.5× as long as wide (viewed dorsally), smooth; first tergum extending slightly less than ½ length of gaster dorsally, with modified setal patch antero-dorsally, subequal to tergum 2, posterior edge sinuate,

ventrally expanded and extending ⅔ length of gaster; terga laterally with 2–3 setae, last 3 with 4–6 dorsal setae; ovipositor sheaths and sterna minutely alveolate; ratio of lengths of femur : tibia : tarsus as follows: foreleg 360:378:270; midleg 387:450:360; hindleg 486:504:306 (73:63:63:108); hindtibial spur slightly shorter than tarsomere 1; inner, dorsal, and ventral surfaces of hindcoxa with numerous silvery setae; ratio of forewing length : width 810:630, ratio submarginal : marginal : stigmal 495:545:27, membrane devoid of setae under proximal ½ of marginal vein (Fig. 23).

Diagnosis.—This is the only known species in which the sculpturing fades out medially on the scutellum (Fig. 17) (scutellum evenly alveolate in other species). In addition, *P. beus* has a modified setal tuft (Fig. 24) projecting laterally from the sides of the petiole (tuft absent in other species), and the dorsal and inner lateral surfaces of the hindcoxa are covered with numerous short silvery setae (other species with only 4–8 long setae laterally on the hindcoxae). Finally, the wing membrane beneath the proximal section of the marginal vein is without setae (Fig. 23) in *P. beus*, while in the other species this area is evenly covered with setae (as in Fig. 22).

Hosts.—Unknown.

Distribution.—Known only from Surinam.

Types.—Holotype ♀ on point with data: "Surinam, Foengoe Island; Voltzberg Nat. Res. San.; Feb. 1982. James Carpenter. Pan trap." Deposited in the Canadian National Collection, type no. 18013. This specimen was collected among second growth vegetation at 90 m in Raleigh Vallen-Voltzberg Natuurreservaat.

Etymology.—The species epithet is a euphonious arbitrary combination of letters.

Paracrias arizonensis (Ashmead), New Combination

Entedon arizonensis Ashmead, 1888a: 103.
Entedon cupreicollis Ashmead, 1888b: viii.

This species was described from a single female collected in Arizona. Later, Girault (1924) synonymized *E. cupreicollis* with *E. arizonensis*. I have examined the type of *Cupreicollis* and concur with this synonymy. Specimens in the USNM indicate that this species may be quite widespread in Western United States and occurs in two color forms. Specimens collected in May, June, and July are nearly uniformly metallic green, while specimens collected in July, August, and September are black. I have been unable to find any additional morphological differences that would indicate that the two color forms represent separate species.

Diagnosis.—This species can be distinguished by the following characters: fore and midfemora black or dark metallic blue, occiput sharply margined (Fig. 10) (also present in *P. beus* and *P. laticeps*; femora brown or yellow and occiput rounded in other species); propodeum with smooth median area (as in Fig. 9) (uniformly alveolate in *P. laticeps* (Fig. 13)); funicle 2-segmented (3-segmented in *P. laticeps*); petiole quadrate, without lateral setal tuft (petiole 2× as long as wide and with lateral tuft in *P. beus* (Fig. 24)).

Hosts.—Unknown.

Distribution.—Alberta, Idaho, Utah, Oregon, Colorado, Arizona, and New Mexico.

Types.—Holotype ♀ on point, USNM type no. 13145. Wings and antennae mounted separately on slide.

Acknowledgments

I am grateful to D. C. Darling, R. E. White, A. S. Menke, and P. Hanson for reviewing the manuscript and for their many helpful comments; C. Yoshimoto and P. Hanson for the loan of specimens from the Canadian National Collection and Oregon State University; and Heidi Wolf (Scanning Electron Microscope Lab, U.S. National Museum) for help with the micrographs.

Literature Cited

Ashmead, W. H. 1888a. Descriptions of some new North American Chalcididae. Can. Entomol. 20: 101–107.

———. 1888b. Descriptions of some unknown parasitic Hymenoptera in the collection of the Kansas State Agricultural College, received from Prof. E. A. Popenoe. Bull. Kans. St. Agr. Coll. Exp. Sta. appendix i–viii.

———. 1904. Classification of the Chalcid-Flies. Mem. Carnegie Mus. 1(4): 551 pp.

Brèthes, J. 1923. Sur un Diptère mineur des feuilles de *Salvia splendens* et deux Hyménoptères, ses parasites. Rev. Zool. Agric. Appl., Bord. 6: 1–6.

Burks, B. D. 1979. Family Eulophidae. *In* Krombein et al., eds., Catalog of Hymenoptera in America North of Mexico. Smithsonian Inst. Press. Vol. 1. 1198 pp.

DeSantis, L. 1955. Los Insectos de Las Islas Juan Fernandez. Rev. Chil. Entomol. 4: 167–198.

Girault, A. A. 1917a. Two new genera of North American Entedontinae (Chalcid-Flies). Can. Entomol. 49: 110–111.

———. 1917b. Speciosissima Genera Nova Eulophidarum. Privately Published. 4 pp.

———. 1924. The North American species of *Emersonopsis, Amestocharis, Euderus,* and *Neomphalomyia.* (Hymenoptera: Chalcididae). Ins. Ins. Mens. 12: 93–95.

Harris, R. 1979. A glossary of surface sculpturing. Occasional papers in Entomology no. 28. California State Department of Food and Agriculture, Sacramento, CA.

Peck, O. 1951. Superfamily Chalcidoidea. *In* Muesebeck, Krombein, and Townes, eds., Hymenoptera of America North of Mexico. U.S. Dept. Agric., Agr. Monog. 2. 1420 pp.