

NEW NORTH AMERICAN HYMENOPTERA OF THE FAMILY EULOPHIDAE.

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The following descriptions are based upon type material in the United States National Museum.

Genus ZAGRAMMOSOMA Ashmead.

This genus bears two ring-joints and differs from *Atoposoma* Masi in bearing a long, distinct propodeum.

ZAGRAMMOSOMA NIGROLINEATA Crawford.

This is a *Gyrolasella*. The type and paratype are males. The grooves on the scutellum of *Z. flavolineata* Crawford and *Z. centrolineata* Crawford are very faint.

ZAGRAMMOSOMA INTERLINEATA, new species.

Female.—Length, 2.05 mm.

Differs notably from the description of the genotype as follows: Near the lateral margin of venter of abdomen runs a metallic green line from base to distal two-thirds and which is continuous with the lateral line of the thorax. These markings also differ: No markings on face; the line across cephalic vertex divides laterad and goes to the eyes; the two diverging lines on upper occiput meet at center of the occiput, then diverge, thus forming a large X, each ventral arm curving around to the apex of the eyes and from thence up the lower occipital margin of the eye for a short distance; dorsal edge of scape and a spot above at base of the pedicel; a long curved spot above on hind coxa at base, a round dot on hind femur laterad before apex and two dots dorsad a little more toward base; the dorso-lateral stripe of thorax is broken at cephalic end of the parapsidal furrows; the complete dorso-lateral stripe of pronotum also forms a continuous line with a complete straight stripe through the parapside, but the line changes angle at the parapside; the median line of postscutellum is marked by a triangle which does not extend to the apex; the propodeum is about as in *americana* but the lines in the place of lateral carinae are incomplete at each end; the abdomen is remark-

ably marmorated—a complete (or nearly) median stripe and about 6 complete cross-stripes (excluding the one at base which is also latero-marginal to the first cross-stripe); stripes 1-3 are similar, incomplete, complex, each consisting of a pair of stripes joined broadly across the meson then separated, each concaved or bowed in opposite directions so that their arms diverge laterad but those of the proximal ones are more curved than the others; stripe 4 is similar but the distal arm is much longer, nearly reaching the lateral margin; stripes 2-4 are joined (thus, the distal arm of 2 joins the proximal one of 3 and in succession); stripe 5 has no arms and is more abbreviated; stripe 6 is complete and is followed by a spot on meson before the apex; the following additional spots on abdomen—a pair of marginal spots in a line opposite the forks of stripes 2-4 (the distal of the two opposite 4 more mesad and against the apex of the distal fork of that stripe); a transverse marginal spot opposite 5; and an oblique longer than wide spot in the disk on each side of meson between 5 and 6. Distal stripe of fore wing nearly straight and complete; the middle stripe is only a subtriangular blotch from the apex of the stigmal vein, the proximal one a short dash. Funicle 1 a half longer than wide. Mandibles 6-dentate.

From one female in the United States National Museum, labeled "D. C., October 6, 1880."

Type.—Cat. No. 19641, U.S.N.M., the female on a tag, the hind legs and head on a slide.

The lateral margins of postscutellum are not metallic.

ZAGRAMMOSOMA AMERICANA, new species.

Female.—Length, 1.50 mm. A round dot on caudal femur laterad at distal three-fourths and one ventro-laterad near base.

Golden yellow and agreeing with the figure and description of *multilineata* except as follows: There are no metallic lines on the face; the two lines of the occiput are curved and meet above across cephalic vertex; below they widely diverge, each curving at the lateral margin from ventrad and proceeding up along the occipital margin of the eye; an irregular line along dorsal edge of the scape; the lateral line of the thorax extends only to the metapleurum; there is a complete dorso-lateral line on prothorax, but the median line extends only to distal two-thirds; the median line of scutum fades out just before apex; parapsidal furrows and mesal margin of each axilla very narrowly green, also the lateral grooves of scutellum, an oblique dash from meso-cephalic angle of each axilla nearly to middle and a dorso-lateral line (continuous with that of pronotum) on each parapside but not quite complete caudad; median line of scutellum extending only to center, but there is a dot at meson at apex; propodeum with a line in the position of median and lateral carinae, cephalic margin

to the spiracles (and a parallel line but broken mesad from each side of the postscutellum) and caudal margin less widely; abdomen with one complete basal cross-stripe and the following, thus differing from *multilineata* conspicuously in having most of the stripes abbreviated laterad—six abbreviated cross-stripes out from the basal one, the whole connected along the meson by a mesal stripe; the first stripe has a transverse marginal spot opposite it, the second and third are with a pair of marginal dots in an oblique line (these three cross-stripes about straight); stripe 4 is Y-shaped with a pair of the dots opposite at margin, 5 the same but with longer arms (the arms of the letter distad in both stripes), nearly connected with a marginal spot which is transverse; 6 is about straight and complete, some little distance from the apex and followed by a mesal dot nearer to the apex. Venation yellow except base and apex of marginal and stigmal veins and base of the postmarginal, which are black. Stripes on fore wing about as in the genotype. May be distinguished at once by the presence of a somewhat longer than wide metallic green marking from cephalic margin of scutum not far from cephalo-lateral angle. Parapsidal furrows curving off before the pronotum. Flagellum not seen.

Described from a female reared from *Sarcobatus*, Boulder, Colorado, December, Cockerell.

Type.—Cat. No. 19642, U.S.N.M., the female on a tag.

EPITETRASTICHUS SEMIAURATICEPS, new species.

Female.—Length, 2.50 mm. Abdomen long, conic-ovate, distinctly longer than the rest of the body.

Dark metallic blue green, the wings hyaline, the venation black, the legs golden yellow except the coxae, all the middle of cephalic femur (less broadly ventrad) and the other femora except at apex. Face below the antennae (but not the cheeks) golden yellow excepting a round spot mesad just ventrad of the antennae and an oblique stripe (but incomplete) pointing to each antennal insertion from the green of the cheeks down near (but not at) the apex of the head and extending from its origin a little more than half way to each antenna (that is, dorso-mesad); but in one specimen this stripe was very broad. Mandibles tridentate. Scape compressed; pedicel subelongate, obliquely golden ventrad from base to apex, nearly twice longer than wide at apex, subequal to funicle 1, the latter subequal to the other two funicle joints. Club 3 with a distinct terminal spine, club 1 not so long as any funicle joint but longest of the club. Distal tarsal joint black. Funicle 1 nearly twice longer than wide. A short, distinct postmarginal vein present. Median sulcus of scutum sometimes completely obliterated. Propodeum short at the meson, long laterad, with a broad, glabrous, depressed median carina and no others, the spiracle

rather large. Sculpture usual, no especial punctures or setae. A row of faint punctures across caudal margin of the pronotum. Trochanters, mesal margin of axilla narrowly and sometimes the entire face ventrad of antennae and mesad of the genal sulcus, golden yellow.

From four females reared from a large bud gall on *Pinus scopulorum* at Denver, Colo. (E. Bethel).

Type.—Cat. No. 19643, U.S.N.M., the above specimens on two tags plus a slide bearing two heads.

TETRASTICHUS ASPARAGI Crawford.

Differs from *Tetrastichus banksi* notably in not having a distinct row of punctures along the lateral margin of the scutum and the pronotum is not punctulate but with only a pair of rows of obscure punctures along the caudal margin. In *Hyperteles blastophagi* Ashmead the scape is pale, the body black, the propodeum with a median carina only. *Tetrastichus acutus* Ashmead is more slender, the tibiae and the venation pale, the body black or nearly; so also *Tetrastichodes tibialis* Ashmead. *Tetrastichus microrhopalae* Ashmead is smaller and has pale venation, the tibiae are pallid and there is no lateral carina on the propodeum; from *rapo* Walker (Crawford) in having funicle 1 longer than wide, not nearly subquadrate and there is a lateral carina on the propodeum. *T. rosae* Ashmead has the scape mostly pale. From *bruchophagi* Gahan in the punctate vertex, the dark venation, the reddish tibiae; from *scolyti* Ashmead not very much but the abdomen is shorter, the venation black, the lateral carina of the propodeum different (or rather there are two of them); the one in *scolyti* forks distad and the spiracle is long-elliptical or like a slit and just mesad of the base of the carina; in this species the spiracle is round and of moderate size. The first lateral carina of propodeum is obliqued a little meso-caudad, the second somewhat as in *scolyti*. Types seen.

Two females from Jordan, Ontario, Canada (W. A. Ross), June 8, 1915.

EPITETRASTICHUS PUNCTATIFRONS, new species.

Female.—Length, 2.10 mm.

Like *Tetrastichus asparagi* Crawford but the scape is reddish yellow, the venation yellow, the first two pairs of tibiae are infuscated along proximal two thirds or more, there is a very distinct row of punctures along the lateral margin of scutum, the vertex and upper face are much more densely punctuate, the punctures nearly confluent (scattered on lower face, the facial impression finely scaly) and the pronotum has a slightly rougher sculpture, also the propodeum is punctate, its lateral carina represented by a flat, smooth spiracular "sulcus" whose sides are very finely carinated but the mesal side so only at base and the carina of the lateral side turns in mesad at the

middle then out again; thus, then, a complete carina is just laterad of the spiracle. Club with a terminal nipple, the club joints not long; funicle 1 nearly a half longer than wide, somewhat longer than 3, subequal to the pedicel, the latter longer than in *asparagi* which bears a second, short ring-joint.

From one female in the United States National Museum, labelled "Tempe, Ariz., D. J. Caffrey. Jan.-Feb. Hym slide (antennae) 627."

Type.—Cat. No. 19644, U.S.N.M., the above specimen on a tag, the antennae on a slide.

NEOTETRASTICHODES LONGICORPUS, new species.

Female.—Length, 3.30 mm. Abdomen long, conic-ovate, twice the length of the thorax. Dark metallic blue, the wings subhyaline, the venation yellow brown, the following parts golden yellow: Head (except upper two-thirds of occiput), legs (except the hind coxae and base of the middle coxae), pronotum, except an inverted fleur-de-lis centrally and which bears a slender bow caudad of the others but originating a little laterad of its base (and excepting caudal and cephalic margins narrowly), lateral margin of scutum, somewhat over the distal third of the latter (a little more at meson), scutellum except at immediate base slightly between the first grooves, parapsides except their cephalic apex broadly and broadly less distinctly along the whole meson except immediately caudad of the dark blue of the apex, axillae except an obtriangular projection from cephalic apex to the middle, mesopleurum under the wing insertion, prepectus except dorsal edge, propleurum except ventro-cephalad, apex of the pedicel and ventral edge of the scape more or less. Forewings with a short postmarginal vein, the stigmal of moderate length. A row of punctures along lateral margin of the scutum and along the caudal margin of the pronotum. Tegulae yellow. Club with a terminal nipple. Flagellum dark brownish. Pedicel subelongate, two and a half times longer than wide at apex, distinctly shorter than funicle 1 which is over twice longer than wide; funicle 3 only slightly shorter than 1, longer than club 1 but only slightly so. Propodeum with a short, broad, complete, strong median carina which forks at apex, no lateral carinae. Postscutellum yellowish brown with a metallic greenish meson.

From a female on a tag labeled, "Las Vegas, N. Mexico, 8, 8, Barber and Schwarz."

Type.—Cat. No. 19645, U.S.N.M., the above specimen on a tag, the antennae on a slide.

TETRASTICHUS POLYNEMAE Ashmead.

This is a species of *Aprostocetus*. The body bears the usual sculpture. The original description is about correct. Club with a distinct terminal nipple, its first joint slightly longer than wide. Pedicel slightly longer than wide at apex; funicle 1 longest, over twice longer than wide, 3 somewhat shorter, distinctly longer than the pedicel. Flagellum with scattered, longish hairs. Marginal fringes of the forewing somewhat longer than usual. Propodeum with rather scaly sculpture, a median carina and apparently no others. Mandibles tridentate.

From the type female in the United States National Museum (the head mounted on a slide).

OOTETRASTICHUS MYMARIDIS, new species.

Female.—Length, 1.10 mm.

Of the same size, form, and color as the preceding but differing specifically as follows: The legs are white except proximal three-fourths of the coxae and the tarsi, the latter dusky black; the third tooth of the mandible is broadly, obliquely truncate; the venation is dusky; the sculpture finer, the scutum subglabrous; propodeum scaly, with a pair of diverging median carinae which diverge distad, no lateral carina; club usual for the genus, with but a very obscure terminal nipple; first ringjoint large, the others equal; pedicel subelongate, twice longer than wide at apex, longer than funicle 1, which is two-thirds longer than wide; funicle 3 somewhat shorter, barely longer than club 1; pedicel wholly brown like the rest of the flagellum.

Described from one female labeled "*Tetrastichus polynemae* Ashmead. Type—No. 5323, U.S.N.M., 8694°4. From egg of *Lestes*, Lake Forest, Illinois, August 4, 1899."

Thus part of the type of the other species.

Type.—Cat. No. 19646, U.S.N.M., the above female plus a slide with the head.

EUELMUS ALBOCINCTUS Ashmead (Tetrastichini).

The funicle is 4-jointed, the club 3-jointed, one ring-joint. Scape and pedicel pale except the latter above. Coxae and base of femora rather broadly black. Stigmal vein of normal length. Scutum with a median groove. Antennae, legs (except coxae), and over proximal third of abdomen in the male, white; the male funicle 3-jointed. In the female, funicle 4 is longest, about a half longer than wide, 1 somewhat longer than wide, somewhat shorter than the not long pedicel. Scape compressed. Mandibles tridentate. Abdomen rounded. Pro-

podeum not long, scaly, with a very delicate median carina and no others. The types are from Jacksonville, Florida. A head of each sex has been mounted on a slide. Scutellum with the usual four grooves.

SYMPIESOMORPHELLEUS NIGRIPROTHORAX, new species.

Female.—Length, 2 mm.

Honey yellow, the wings subhyaline, the venation yellow, the head, the rather large prothorax, and the abdomen except median line of venter and a line on dorsum just within the margins (around base and down each side for proximal three-fourths). Two black bristles on scutellum just outside of the groove, one at each end. Parapsidal furrows not reaching the pronotum but curved off. Mandibles 10-dentate, the tenth tooth very minute, the next 8 comblike. Scape pale at proximal third. Antennae inserted somewhat below the middle of the face; pedicel a half longer than wide, subequal to funicle 4, which is subequal to club 1; funicle 1 over twice longer than wide, 2 a half longer than wide, subequal to 3 and 4. Axillae not advanced. Body coarsely scaly. Propodeum with a black streak like lateral carinae but only a median carina is present. Stigmal vein about a third of the length of the marginal, shorter than the postmarginal. Club with a small terminal nipple.

Described from one female on a tag in the United States National Museum labeled "April 30. Riley Co., Kansas, Marlatt. 2422."

Type.—Cat. No. 19647, U.S.N.M., the specimen on a tag, the hind legs and head on a slide.

MIROLYNX, new genus (Omphalini).

Female.—Like *Pseudolynx* Girault, but the scutellum with two obtuse grooved lines; and the funicle is 3-jointed, the club 2-jointed and with a minute terminal nipple. Genal suture distinct.

Type of the genus.—*Mirolynx flavitibiae*, new species.

MIROLYNX FLAVITIBIAE, new species.

Female.—Length, 2.25 mm.

Dark metallic green, the antennae and venation dark brown, the scape, tibiae, and tarsi lemon yellow. Fore wings with a fuscous spot along the stigmal vein and another somewhat larger one from the base of the marginal vein; the spot along the proximal side of the stigmal vein projects a little beyond the apex of that vein. Funicle joints 2-3 subequal, each slightly longer than wide, 1 somewhat longer than 2, the latter somewhat longer than the pedicel. Club 1 subquadrate, club 2 at apex acute. Mandibles with three rude teeth, the first acute, the third with several minute dentations along its apical margin. Flagellum (except pedicel) clothed with broad,

flattened hairs. Body densely scaly. Propodeum noncarinate, with spiracular sulci. Scutellum with six bristles, three to a side, two of these cephalad of middle. Middle femur at mesal apex with a stout bristle.

The male is the same (antennae not seen) but the abdomen is depressed and the proximal spot on the fore wing is absent.

Described from four males, two females in the United States National Museum, labeled "Santa Cruz Mountains, California, 59."

Types.—Cat. No. 19648, U.S.N.M., two pairs on four tags plus a slide bearing the female head, a pair of wings and a caudal tibia.

TETRASTICHOPSIS, new genus.

Female.—Like *Aprostocetus* Westwood but the scutellum with only the lateral of the four grooved lines.

Type of the genus.—*Tetrastichopsis prionomeri*, new species.

TETRASTICHOPSIS PRIONOMERI, new species.

Female.—Length, 1.10 mm.

Dark metallic blue, the knees, tibiae, and tarsi (except the last joint of the latter) golden yellow, the wings hyaline, the venation dusky pallid. Differs from *Tetrastichus microrhopalae* Ashmead especially in being darker and the funicle joints are shorter, all slightly wider than long rather than somewhat longer than wide as in the other species. It differs from *Tetrastichus rapo* Walker (Crawford and Gahan) in having funicle 1 subquadrate instead of somewhat longer than wide and the median carina of the propodeum is more distinct. From *Geniocerus chrysopae* Crawford only in the generic character. From *Tetrastichus bruchophagi* Gahan in having the funicle joints distinctly shorter and the body less metallic. Propodeum with a median carina in all of these species but no lateral one; also the club has a terminal nipple. Pedicel in *prionomeri* a little longer than funicle 1.

Described from four females reared from *Prionomerus calceatus*, a leaf-miner in sassafras, Clarksville, Tennessee, June 18, 1915 (W. D. Pierce).

Types.—Cat. No. 19649, U.S.N.M., four females on tags, a head on a slide.

TETRASTICHOMORPHA AJAX, new species.

Female.—Length, 1.50 mm., excluding the ovipositor which is exerted for three-fourths of the abdomen's length.

Agreeing with the original description of *Aprostocetus canadensis* Ashmead but dark green, the legs golden yellow except the coxae and femora, the latter golden yellow along distal third. Mandibles tridentate. Club with a small terminal nipple. Scape compressed; pedicel subequal to funicle 2 which is a little shorter than 1, the

latter nearly twice longer than wide; funicle 3 somewhat longer than wide; club wider than the funicle but not as long. Venation blackish. Head and thorax with the usual scaly, tetrastichine sculpture. Propodeum transverse at the meson, broadening laterad, with an obtuse median carina but no others. Scutum with only a few scattered setae, these along the lateral margin.

Described from three females captured by sweeping in a forest path, Anacostia, District of Columbia, June, 1915.

Types.—Cat. No. 19650, U.S.N.M., the above specimens on a tag, a head on a slide.

ZAGRAMMOSOMA SANGUINEA, new species.

Female.—Length, 1.50 mm.

Blood red, the wings hyaline, the body marked with black as follows: An obscure line across upper occiput, an irregular blotch on upper scape some little distance before apex, upper pedicel at proximal two-thirds, a narrow line along the dorso-lateral aspect of pronotum, parapsidal furrows narrowly except at extreme apex, median line of scutum narrowly, the line broken in three places (thus composed of four longer than wide spots), cephalic margin of propodeum to the spiracle (a wavy line), median line of same (both rather narrowly), an hourglass-shaped median line from base of abdomen, a short, thin line across its apex; and then four wider but incomplete cross-lines of which the last is composed of a transverse spot on each side of the meson and is a little distad of distal three-fourths, while the first of the four is incised at meson caudad. Mandibles 5-dentate. Propodeum noncarinate. Grooves of scutellum absent except on one side distad. Club with a distinct terminal nipple. Two ring-joints; funicle 2 a little longer than wide, shorter than the pedicel. Body finely scaly.

From one female in the United States National Museum, labeled "Colorado, 1094."

Type.—Cat. No. 19651, U.S.N.M., the above specimen on a tag, a middle and hind leg and the head on a slide.