

# **A Preliminary Revision of Tribe Pristicerotini Occurring in Formosa, with Descriptions of Four New Species (Hymenoptera: Ichneumonidae)**

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## **Abstract**

Formosan species of the tribe Pristicerotini belonging to the subfamily Ichneumoninae are revised. The genera *Platylabus* (including two new species) and *Linycus* (including one new species) are recorded for the first time from Formosa. A total of six species dealt with: four of them are new to science.

Key words: Insecta, Hymenoptera, Parasitica, Ichneumoninae, Pristicerotini.

## **Introduction**

The tribe Pristicerotini (Platylabini of PERKINS, 1959; and HEINRICH, 1962) is a comparatively large group of the Ichneumoninae, being represented by 19 genera containing nearly 170 described species in the world. In Formosa only 2 species of this tribe have been given by T. UCHIDA (1932). The present article examines material from Formosa collected by Messrs. K. ÔHARA, T. GÔTO, A. SEINO, and preserved material of the Formosan Pristicerotini in the collection of the Entomological Institute, Hokkaido University. In the course of the present study, 3 genera have been known to occur in Formosa. In this paper will be given 6 species, of which 4 are new to science. The holotypes of the new species will be preserved in the collection of the Entomological Institute, Hokkaido University, Sapporo.

### **Family ICHNEUMONIDAE Subfamily ICHNEUMONINAE Tribe PRISTICEROTINI**

The tribe Pristicerotini may be distinguished from any other tribe of Ichneumoni-

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nae by the combination of the following characters:—

Head with clypeus moderately to strongly convex; temple narrow, convergent posteriorly; flagellum in female long and slender, bristleshaped, sometimes weakly widened beyond middle, weakly flattened ventrally, in male usually without tyloides, sometimes the subapical segments more or less serrate. Scutellum not flat, more or less elevated above, its lateral carina strong, extending almost to its entire length. Propodeum with spiracle circular to elongate; propodeal carinae strong, usually complete, sometimes costula absent. Legs long and slender; tarsal claws simple. Abdomen with petiole usually conspicuously wider than high, flat above; postpetiole with or without defined, median field, not longitudinally striate, usually almost smooth, or irregularly finely rugose, sometimes punctate; ovipositor short, subtended by a large, broadly triangular subgenital plate.

The members of this tribe are principally parasites of Lepidoptera, belonging to Geometridae. In the European species, *Platylabus tenuicornis* (GRAVENHORST) and *P. histrio* WESMAEL, however, are parasitic upon pupae of Drepanidae (PERKINS, 1959).

The Formosan genera may be distinguished by the following key, of which the completion owes much to the key to genera of the tribe Pristicerotini (Platylabini) published by J. F. PERKINS (1959), H. and M. TOWNES and V. K. GUPTA (1961), and G. H. HEINRICH (1962).

### Key to the genera of Pristicerotini occurring in Formosa

1. Propodeum with costula present; propodeal spiracle circular or subcircular, at most 1.5 times as long as wide. Notaulus rather strongly impressed and longer than in *Platylabus* and *Pristiceros*. ..... 3. *Linycus* CAMERON
- Propodeum with costula present or absent; propodeal spiracle oval or slit-like, at least 2.0 times as long as wide. Notaulus weakly impressed and shorter than in *Linycus*. ..... 2
2. Propodeum with costula absent. Male flagellum never serrate, usually without tyloides. Abdomen with thyridiae at least as near to each other of a thyridia, usually much closer; gasterocoeli usually deep. Legs with tarsal claws without a long sinuate hair. .... 1. *Platylabus* WESMAEL
- Propodeum with costula present and strong. Male flagellum at least subapical segments more or less serrate, with conspicuous tyloides. Abdomen with thyridiae conspicuously further from each other than the width of a thyridia; gasterocoeli shallow. Legs with tarsal claws with a long, sinuate hair ..... 2. *Pristiceros* GRAVENHORST

## 1. Genus *Platylabus* WESMAEL

*Platylabus* WESMAEL, Nouveaux Mém. Acad. Roy. Sci. Let. Beaux-Art Belgique 18: 153, 1844. Type-species: *Platylabus rufus* WESMAEL, 1884.

*Pyramidophorus* TISCHBEIN, Stettin. Ent. Ztg. 43: 484, 1882.

*Pachyjoppa* CAMERON, Ann. & Mag. Nat. Hist. (7) 7: 374, 1901. Type-species: *Pachyjoppa tibialis* CAMERON, 1901.

*Lamprojoppa* CAMERON, Ann. & Mag. Nat. Hist. (7) 7: 482, 1901. Type-species: *Lamprojoppa caerulea* CAMERON, 1901.

*Pagarenes* CAMERON, Ztschr. System. Hymen. Dipt. 3: 183, 1903. Type-species: *Pagarenes erythropus* CAMERON, 1901.

*Chlorojoppa* CAMERON, Ztschr. System. Hymen. Dipt. 7: 466, 1907. Type-species: *Chlorojoppa viridis* CAMERON, 1907.

This is the largest and most common genus of this tribe, being represented by 93 described species, 71 from Holarctic, 7 from Neotropic, 14 from Oriental, and 1 from Australian regions. In the course of the present study two species, both of which are new to science, have been found.

This genus is characterized by the following aspects:—

Head with male flagellum never serrate, usually without tyloides; female flagellum bristleshaped, very long and slender, extremely attenuated, sometimes weakly to moderately widened beyond middle. Mesoscutum convex, more or less densely punctate; scutellum rather strongly convex, strongly carinate laterally. Propodeum with costula usually absent; areola approximately square or rectangular; propodeal spiracle subcircular or slit-like, at least 2.0 times as long as wide. Abdomen with postpetiole with a fairly distinct median field, irregularly fine rugose or almost smooth; thyridiae at least as near to each other as the width of a thyridia, usually much closer; gasterocoeli always deep. In so far as their habits are known, the members of *Platylabus* are parasites of pupae of Lepidopterous families Geometridae and Drepanidae. No host records are given in the Formosan species.

The Formosan species can be distinguished by the following key:—

### Key to the Formosan species of *Platylabus*

1. Head with face comparatively wide, 1.8 times as wide as high at level of lower margin of antennal socket; interantennal process strong and high; frons transversely striate; malar space brilliant blue, without yellow band. Propodeum with areola short, 1.1 times as long as its basal width. Body almost entirely brilliant metallic-blue, with frontal and tempolar orbits, and dorsal sides of tibiae (Fig. 11) yellow. ....

..... 1. *brilliantus* sp. nov.  
 Head with face comparatively narrow, 1.1 times as wide as high at level of lower margin of antennal socket; interantennal process weak and low; frons not striate; malar space black, with a ventral yellow band (Fig. 1). Propodeum with areola long, 1.8 times as long as its basal width. Body black, with inner and temporal orbits (Fig. 1), dorsal side of collar, dorsolateral side of pronotum, subtegular ridge, scutellum, and postscutellum yellow. .... 2. *taiwanus* sp. nov.

### 1. *Platylabus brilliantus* sp. nov. (Figs. 9, 11, 13 & 19)

♀. Face moderately strongly and densely punctate, about 1.8 times as wide as high at level of lower margin of antennal socket; 2nd segment of maxillary palpus subtriangular, 2.1 times as long as wide (Fig. 9); 3rd and 4th segments of maxillary palpus not swollen (Fig. 9); upper transverse carina of face distinct, weakly notched upwards; interantennal process high and strong; clypeus slightly convex, about 2.1 times as wide as high, moderately strongly and densely punctate, the punctures a little sparser apically; apical margin of clypeus widely truncate; malar space about 1.3 times as long as basal width of mandible; inner margins of eyes parallel-sided; temple flat, weakly and rather sparsely punctate; distance between lateral ocelli and eyes 1.5 times as long as diameter of an ocellus; frons polished, widely and rather shallowly concave, impunctate on basal part, moderately strongly and rather densely punctate with transverse striae on dorsal part. Antennae 45-segmented; 1st flagellar segment 3.3 times as long as wide at apex, and 1.2 times as long as the 2nd; 2nd flagellar segment about as long as the 3rd. pronotum weakly and obliquely striate medially, strongly and rather densely punctate dorsally; mesoscutum rather weakly and densely punctate; notaulus slightly impressed, replaced by transverse short striae; lateral carina of scutellum strong, extending almost to its entire length; mesopleurum strongly and densely punctate, weakly striate-rugose on median part, with a few striae along prepectal carina; specillum with strong and coarse punctures; metapleurum strongly and densely punctate entirely; juxtacoxal carina incomplete, present at both ends. Propodeum completely areolated, but costula very weak or obsolete; basal, lateral and petiolar areas weakly and loosely rugose; areola bare, received costula at apical 3/8; pleural area longitudinally striate; areola large, about 1.8 times as long as its basal width; propodeal apophyses strong, rather high; propodeal spiracle elongate, 4.4 times as long as wide. Venation of wings as in Figs. 13 & 19. Legs with hind femur about 4.7 times as long as wide in lateral view; inner spur of hind tibia 1.1 times as long as the outer spur; hind basitarsus 3.0 times as long as the 2nd segment. Abdomen with 1st tergite almost entirely bare, impunctate, about 2.4 times as long as wide at apex; postpetiole shallowly and very sparsely punctate; 2nd tergite strongly mat, about 5/6 as long as wide at apex, and about 1.4 times as long as the 3rd; 3rd tergite

mat, 5/6 as long as its basal width; 4th and 5th tergites weakly mat; subgenital plate densely haired medially, bare laterally, with a tuft of hairs on apical part.

Brilliant metallic-blue. Mandible metallic blue-black; palpi infuscate to black, a little paler apically; upper lateral corner of face, frontal orbit, and median part of temporal orbit yellow. Scape and pedicel metallic blue-black; flagellum black, the 8th to 12th segments except for underside whitish. Front and middle legs with coxae brilliant metallic-blue; trochanters metallic blue, its extreme apex tinged with yellowish to reddish brown; femora brilliant metallic-blue, the inner apical 1/3 of front one and apicolateral part of middle one whitish; front tibia infuscate, whitish yellow on inner side, the yellow area extended subbasally; middle tibia metallic blue-black, with a large, laterosubbasal whitish yellow marking; tarsi black. Hind leg with coxa, trochanter and femur brilliant metallic-blue, the extreme apices of 1st and 2nd trochanters, base of femur tinged with brown; tibia black on inner side, blue-black on outer side, and whitish yellow on subbasal 1/2 of outer side (Fig. 11); tarsus black. Wings clouded; stigma fuscous to infuscate, a little paler medially.

Length: Body 12.6 mm., forewing 10.5 mm.

♂. Unknown.

Holotype (♀): Tayuling, Nantou Hsien, 23 - 26-vii-1981, A. SEINO leg.

Distribution: Formosa.

This species is similar to a forthcoming species, *P. taiwanus* sp. nov., but it can be clearly separated from the latter by the brilliant metallic-blue body, the long areola of the propodeum, the comparatively wide face, etc. as mentioned in the key. Furthermore, in general appearance and colouration this species is closely related to the Japanese *P. nigricornis* UCHIDA, 1926, but it differs from the latter by the coarsely punctate speculum, the weakly striate-punctate occiput, the entirely metallic-blue malar space, and the metallic-blue hind tibia with a large, white marking.

## 2. *Platylabus taiwanus* sp. nov. (Figs. 1, 10, 12, 14 & 20)

♀. Face moderately strongly and densely punctate, weakly and vertically rugose on median part, about 1.4 times as wide as high at level of lower margin of antennal socket; 2nd segment of maxillary palpus subtriangular, 2.3 - 2.4 times as long as wide (Fig. 10); 3rd and 4th segments of maxillary palpus not swollen (Fig. 10); upper transverse carina weak, weakly notched upwards on central part; interantennal process very weak and low; clypeus slightly convex, rather sparsely and strongly punctate, the punctures sparser ventrally, its apical margin slightly convex; malar space about as long as basal width of mandible; inner margins of eyes parallel-sided; temple flat, weakly and rather densely punctate; distance between lateral ocelli and eyes about as long as diameter of an ocellus; frons weakly concave, bare on lower 1/2, finely and rather densely punctate on dor-

sal 1/2, without transverse striae. Antennae with 39 or 40 segments; 1st flagellar segment 4.5 times as long as wide at apex and about 1.3 times as long as the 2nd; 2nd flagellar segment 1.1 times as long as the 3rd. Pronotum densely and distinctly punctate, rugulose medially; notaulus weakly impressed at base; scutellum rather sparsely and distinctly punctate, its lateral carina strong, extending near apex; mesopleurum strongly and densely punctate entirely; speculum with shallow, rather sparse punctures; metapleurum strongly and densely punctate; juxtacoxal carina complete. Propodeum distinctly areolated, but costula entirely absent; areola bare, about 1.1 times as long as its basal width; 1st and 2nd lateral areas weakly rugoso-punctate, with short transverse striae along median longitudinal carina; 3rd lateral and petiolar areas transversely rugose; pleural area vertically rugoso-punctate; propodeal spiracle about 3.6 times as long as wide; propodeal apophyses very low. Venation of wings as in Figs 14 & 20. Hind leg with femur 4.6 – 4.8 times as long as wide in lateral view; inner spur of hind tibia about 1.2 times as long as the outer spur; hind basitarsus about 2.4 times as long as the 2nd segment. Abdomen with 1st tergite almost entirely bare, sparsely haired on lateral sides, 2.6 – 2.7 times as long as wide at apex; 2nd tergite mat with shallow punctures, about as long as wide and 1.6 times as long as the 2nd; 2nd tergite weakly mat, about 2/3 as long as its basal width; 4th and 5th tergites slightly mat; subgenital plate sparsely haired medially, bare laterally, without an apical hair tuft.

Black. Dorsolateral 1/2 of facial orbit (Fig. 1), frontal orbit (Fig. 1) and median 1/3 of temporal orbit narrowly yellow; lower margin of malar space and lateral corner of clypeus dirty yellow (Fig. 1); mandible blackish, apical teeth tinged with dark brown; palpi infusate, apical two segments of maxillary palpus fuscous. Antennae black, the 9th to 14th flagellar segments except for underside, whitish yellow. Scutellum, post-scutellum, narrow dorsal margin of pronotum, and subtegular ridge yellow. Front leg with coxa black; trochanter black, dark brown at extreme apex; femur black, the base, apex and inner apical 2/3 yellow to yellowish brown; tibia fuscous, yellowish on inner side; tarsus fuscous. Middle leg with coxa black; trochanter black, dark brown at extreme apex on each segment; femur black, yellow on inner apical part; tibia similar to front one, but a little darker; tarsus fuscous to infusate; hind leg (Fig. 12) black, reddish brown at extreme base of femur. Wings weakly clouded.

Length: Body 9.1 – 10.2 mm., forewing 7.4 – 7.9 mm.

♂. Unknown.

Holotype (♀): Hsitsun – Chihtuan, 1,000 – 1,200 m, Taoyuan Hsien, 18-iv-1981, K. ÔHARA leg. Paratype: 1♀, same data but collected by H. TAKEMOTO.

Distribution: Formosa.

This species is similar to the preceding species *P. brilliantus* sp. nov., but it differs clearly from the latter by the small interantennal process, the short areola of the propodeum, the black body, etc. as mentioned in the key. Furthermore, this species is closely allied to the Japanese *P. okui* UCHIDA, 1956, from which it is readily distinguish-

able by the postfurcal nervulus, the entirely black propodeum and front and middle coxae, and the abdominal tergites without a yellow apical band.

## 2. Genus *Pristiceros* GRAVENHORST

*Pristiceros* GRAVENHORST, Ichneumonologia europaea 1: 635, 1829. Type-species: *Pristiceros serrarius* GRAVENHORST, 1829.

*Neopristiceros* HEINRICH, Canad. Ent. Sup. 15: 13, 1961. Type-species: *Ichneumon lascivus* CRESSON, 1867.

*Pristicerops* HEINRICH, Canad. Ent. Sup. 27: 786, 1962. Type-species: *Platylabus bakeri* DAVIS, 1962.

This is a rather small genus, being represented by 12 described species, 5 from Palearctic, 2 from Nearctic and 5 from Oriental regions.

This genus is characterized by the following aspects:—

Head with clypeus polished, with its apical margin not inflexed; central segments of male flagellum with conspicuous tyloides; male flagellar segments at least subapical segments more or less serrate; female flagellum bristleshaped, long and slender, ventrally flattened beyond middle and weakly widened, extremely attenuated at apex. Mesoscutum polished, moderately densely punctate; notaulus obsolete; scutellum polished, rather strongly convex, with a strong lateral carina. Propodeum with areola subquadrate; costula very strongly developed; propodeal spiracle oval or slit-like, at least 2.0 times as long as wide. Abdomen with petiole, centrally, wider than high; thyridiae conspicuously further from each other than the width of a thyridia. The European species, *P. serrarius* GRAVENHORST, is a parasite of *Boarmia consortaria* SCOPOLI (Geometridae) (HEINRICH, 1962). There are no records yet concerning the Formosan species.

The following three species of this genus have been known to occur in Formosa, being distinguished by the following key:—

### Key to the Formosan species of *Pristiceros*

- Propodeum with areola longer than wide in male, as long as wide in female; 2nd segment of maxillary palpus strongly swollen, 1.6 times as long as wide (Fig. 7). Yellow band of tempolar orbit with a wide interruption (Fig. 3). Mesoscutum with a small, central, yellow spot; hind coxa almost black, with a small, basodorsal yellow spot. .... 1. *formosanus* (UCHIDA)
- Propodeum with areola clearly wider than long in male; 2nd segment of maxillary palpus weakly swollen, 2.4 – 2.7 times as long as wide (Figs. 6 & 8). Yellow band of tempolar orbit not interrupted (Figs. 4 & 5). Mesoscutum with a pair of short yellow

- strips; hind coxa blackish basoventrally, yellow apicodorsally. .... 2
2. Wings (Figs. 16 & 22) with areolet shortly stalked above, receiving 2nd recurrent vein at the middle; stigma slender, 4.3 times as long as wide; nervellus less strongly reclivous. Pronotum horizontally striate-punctate; petiolar area of propodeum transversely and strongly striate. Metapleurum with a pair of yellow spots, which are not confluent each other. .... 2. *taihorinus* (UCHIDA)
- Wings (Figs. 18 & 23) with areolet sessile above, receiving 2nd recurrent vein basad of the middle; stigma stout, 3.9 times as long as wide; nervellus more strongly reclivous. Pronotum shallowly and moderately densely punctate; petiolar area of propodeum very finely punctate. Yellow spots of mesopleurum confluent each other, the median part very narrow. .... 3. *uchidai* sp. nov.

### 1. *Pristiceros formosanus* (UCHIDA) (Figs. 3, 7, 15 & 21)

*Platylabus formosanus* UCHIDA, Jour. Fac. Agr. Hokkaido Imp. Univ. 33: 162, 1932.

*Pristiceros formosanus*: TOWNES, TOWNES, and GUPTA, Mem. Amer. Ent. Inst. 1: 394, 1961.

*Pristiceros formosanus*: CHIU, Taiwan Agr. Res. Inst. Special pub. 15: 47, 1984.

On the basis of the present specimens a redescription is given below:—

♀. Face shallowly and moderately densely punctate, about 1.5 times as wide as high; upper transverse carina of face distinct; clypeus about 1.7 times as wide as high, moderately strongly convex, punctate as in face, its apical margin slightly concave medially; malar space 1.0 times as long as basal width of mandible; 2nd segment of maxillary palpus strongly swollen, about 1.6 times as long as wide (Fig. 7); 2nd and 3rd segments of maxillary palpus weakly swollen (Fig. 7); frons polished, virtually bare, with a few, sparse, setiferous punctures on dorsal 1/2; distance between lateral ocelli and eyes about 1.1 times as long as diameter of an ocellus. Antennae with 32 segments; 1st flagellar segment 4.6 – 4.7 times as long as wide at apex and 1.2 – 1.3 times as long as the 2nd. Pronotum impunctate medially, finely and rather densely punctate dorsally; mesoscutum strongly and densely punctate; scutellum moderately strongly and rather densely punctate, its lateral carina strong, extending almost to its entire length; mesopleurum strongly and densely punctate, partly rugoso-punctate; speculum shallowly and densely punctate; metapleurum strongly and rather densely punctate; juxtacoxal carina strong and complete. Propodeum with areola short, about 1.0 times as long as wide at costula; receiving costula at apical 2/3, areola, basal and petiolar areas virtually bare; 1st and 2nd lateral areas transversely striate; 3rd lateral area obliquely striate; 1st lateral area with large, sparse punctures; propodeal spiracle subcircular, 2.3 times as long as wide; propodeal crest strong, moderately high. Venation of wings as Figs. 15 & 21; areolet sessile



above, receiving 2nd recurrent vein at the middle; stigma 3.3 – 3.4 times as long as wide; nervellus weakly reclivous. Hind femur 3.8 times as long as wide in lateral view; inner spur of hind tibia 1.1 times as long as the outer one; basitarsus of hind leg 3.3 times as long as the 2nd segment. Abdomen with 1st tergite virtually bare, very sparsely haired laterally, 2.3 – 2.4 times as long as wide at apex; postpetiole bare on median area, sparsely punctate laterally and apically,  $4/5$  as long as its apical width; 2nd tergite strongly and densely punctate,  $5/6$  –  $8/9$  as long as wide at apex and 1.3 – 1.5 times as long as the 3rd; 3rd tergite strongly punctate as in 2nd one; 4th tergite weakly mat; subgenital plate rather densely haired.

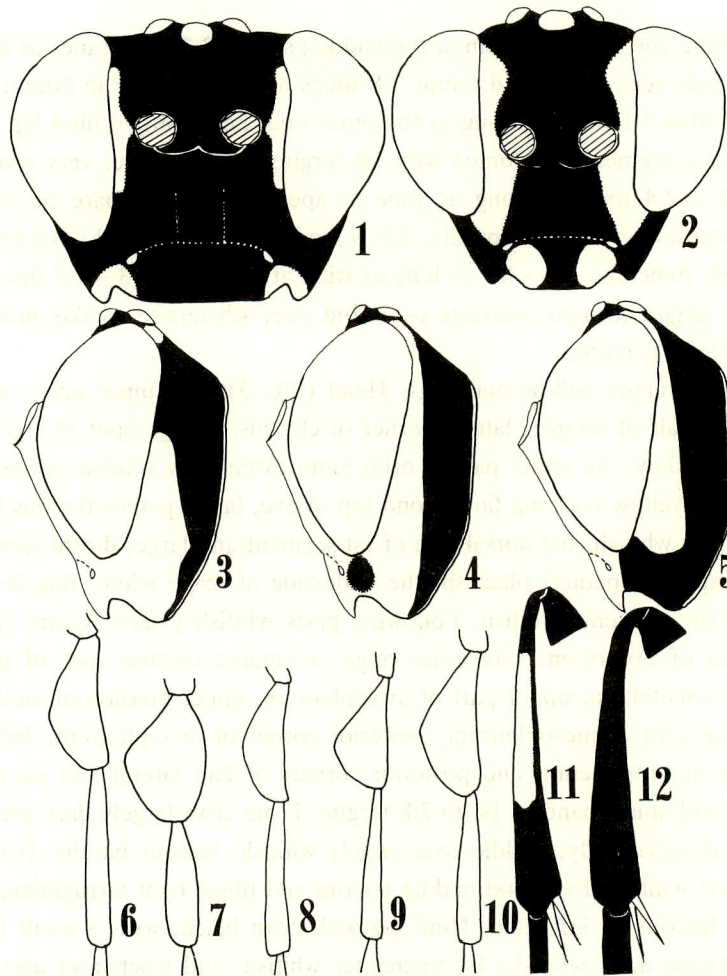
Black, with many yellow markings. Head (Fig. 3) with inner orbit, malar space, lower anterior half of temple, lateral corner of clypeus, a large spot of clypeus, and labrum whitish yellow, the upper part of orbit more extensively whitish yellow; upper end of inner orbital yellow marking far beyond top of eye; labial palpus fuscous to infusate; maxillary palpus whitish, the dorsal side of 1st segment and large, dorsal spot of 2nd one infusate. Scape and pedicel blackish, the underside of scape white; flagellum blackish, the 7th to 13th segments whitish. Following parts whitish yellow: entire collar, upper dorsal margin of pronotum, subtegular ridge, a median circular spot of mesoscutum, scutellum, postscutellum, upper part of mesopleurum, upper division of metapleurum, a posteromedian spot of mesopleurum, posterior corner of metapleurum, 3rd lateral and pleural areas of propodeum, and posterior corners of 2nd lateral and pleural areas of propodeum, and apical band of 1st to 7th tergite. Front coxa largely dark brown, whitish apically and dorsolaterally; middle coxa largely whitish, fuscous basally; front and middle trochanters whitish; front and middle femora and tibiae light ferruginous; front and middle tarsi fuscous to infusate. Hind leg with coxa black, with a small basal yellow spot, the extreme apex whitish; 1st trochanter whitish; 2nd trochanter and femur light ferruginous, the apical  $1/4$  of femur infusate; tibiae light ferruginous on median  $2/5$ , blackish on basal  $1/5$  and apical  $2/5$ ; tarsus black. Wings subhyaline; stigma infusate, a little paler centrally. Subgenital plate dark brown to yellowish brown, darker basally, paler apically.

Length: Body 7.3 – 8.2 mm., forewing 5.8 – 6.9 mm.

♂. Agrees with the above-mentioned description of the female, except for the following aspects:—

Punctuation of face and clypeus a little sparser than in female; flagellum with 19 +  $\alpha$  (apical segments lacking); 1st flagellar segment 4.0 times as long as wide at apex and 1.4 times as long as the 2nd. Punctuation of pronotum stronger than in female. Stigma 3.9 times as long as wide; propodeum with areola 1.1 times as long as wide at costula. Second tergite about 1.1 times as long as wide at apex. Hind femur 4.2 times as long as wide in lateral view; inner spur of hind tibia 1.2 times as long as the outer spur; basitarsus of hind leg 2.5 times as long as the 2nd segment.

Face and clypeus entirely whitish yellow; posterior part of metapleurum, 2nd lateral



Figs. 1 – 2. Colour pattern of head in frontal view: 1, *Platylabus taiwanus* sp. nov., ♀; 2, *Linycus gotoi* sp. nov., ♀.

Figs. 3 – 5. Colour pattern of head in lateral view: 3, *Pristiceros formosanus* (UCHIDA), ♂; 4, *P. taihorinus* (UCHIDA), ♂; 5, *P. uchidai* sp. nov., ♂.

Figs. 6 – 10. Second and 3rd segments of maxillary palpus: 6, *P. taihorinus* (UCHIDA), ♂; 7, *P. formosanus* (UCHIDA), ♂; 8, *P. uchidai* sp. nov., ♂; 9, *P. brilliantus* sp. nov., ♀; 10, *P. taiwanus* sp. nov., ♀.

Figs. 11 – 12. Colouration of hind tibia in outer lateral view: 11, *P. brilliantus* sp. nov., ♀; 12, *P. taiwanus* sp. nov., ♀.

and pleural areas of propodeum more extensively yellow; yellow spot of mesopleurum larger than in female, its anterior part narrowly extended; flagellum blackish, the apex of 11th segment, 12th to 15th, and base of 16th white; front coxa whitish yellow, fuscous basally; middle coxa entirely whitish yellow; clasper fuscous.

Length: Body 8.7 mm., forewing 6.5 mm.

Specimens examined: 1 ♀ (allotype of *formosanus*, apical segments of flagellum and hind legs lacking), v-1910, Taihorin, H. SAUTER leg.; 1 ♀ (apical segments of flagellum lacking), i-1910, Taihorin, H. SAUTER leg.; 1 ♀, 1-v-1981, Wulai, Taipei Hsien, H. TAKEMOTO leg.

Distribution: Formosa.

## 2. *Pristicerus taihorinus* (UCHIDA) (Figs. 4, 6, 16 & 22)

*Platylabus taihorinus* UCHIDA, Jour. Fac. Agr. Hokkaido Imp. Univ. 33: 163, 1932.

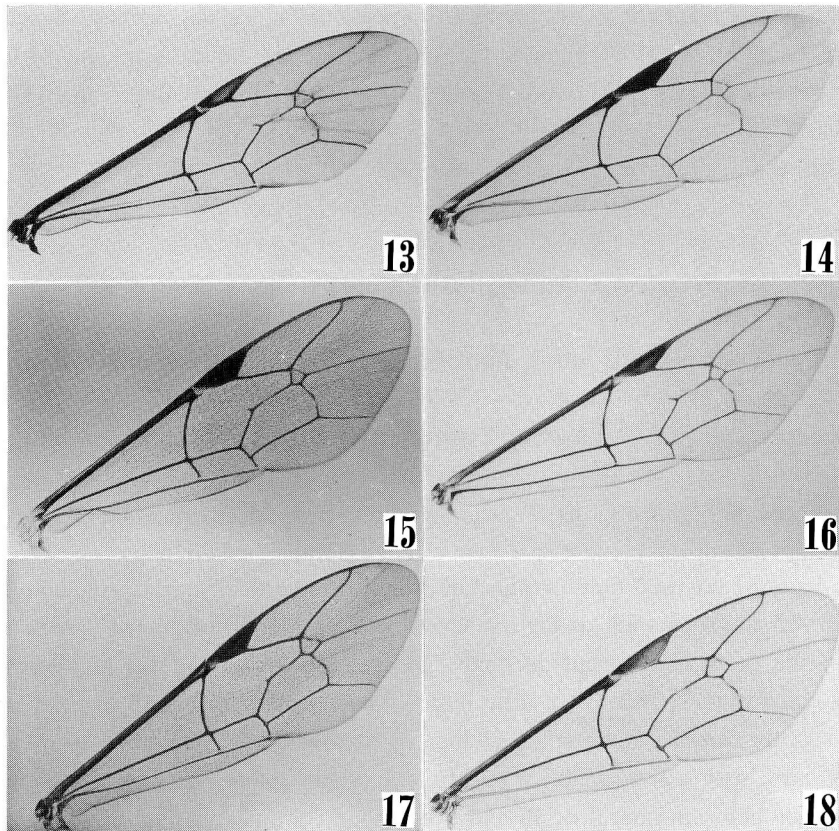
In part.

*Pristicerus taihorinus*: TOWNES, TOWNES, and GUPTA, Mem. Amer. Ent. Inst. 1: 395, 1961.

*Pristicerus taihorinus*: CHIU, Taiwan Agr. Res. Inst. Special pub. 15: 47, 1984.

On the basis of the present specimen a redescription is given below:—

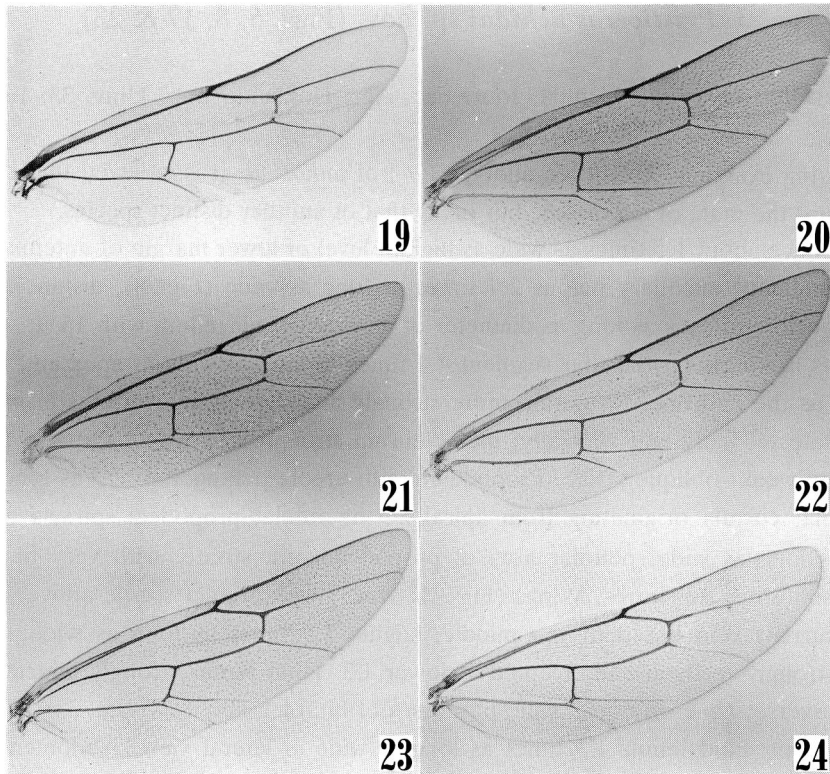
♂. Face weakly and densely punctate, finely and vertically striate-punctate medially, about 1.5 times as wide as high at level of lower margin of antennal socket; upper dorsal carina of face weak but distinct; clypeus 1.8 times as wide as high, moderately strongly convex, the punctures a little more coarser and sparser than in face, its apical margin slightly convex; malar space as long as basal width of mandible; frons polished, virtually bare, with a few, weak, trans-striae and with sparse hairs on dorsolateral corner; distance between lateral ocelli and eyes about 1.1 times as long as diameter of an ocellus; maxillary pulpus weakly swollen, 2.4 times as long as wide (Fig. 6); 2nd and 3rd maxillary palpus not swollen (Fig. 6). Flagellum with 21 +  $\alpha$  (apical segments lacking); 1st flagellar segment 4.0 times as long as wide at apex and 1.5 times as long as the 2nd one. Pronotum almost entirely striate, impunctate medially and ventrally, with distinct and rather sparse punctures on dorsal part; mesoscutum strongly and densely punctate; scutellum coarsely and rather densely punctate, its lateral carina strong, extending almost to its entire length; mesopleurum almost entirely rugoso-punctate, with a small impunctate area just below speculum; speculum rugoso-punctate on anterior 1/2, almost impunctate on posterior 1/2; metapleurum rather strongly and vertically striate-punctate; juxtacoxal carina very strong and complete; juxtacoxal area polished, with a few loose rugae. Propodeum with areola virtually bare, transverse, 7/9 as long as wide at costula, receiving costula at apical 4/9; lateral areas more or less loosely rugose; 2nd and 3rd pleural areas strongly and transversely striate; petiolar area strongly and transversely striate; propodeal spiracle elliptic, about 2.0 times as long as wide; propodeal crest distinct, but not high. Venation of wings Figs. 16 & 22; areolet shortly stalked above, receiving 2nd recurrent vein at the middle; stigma 4.3 times as long as wide; nervellus vertical, intercepted at lower 1/4. Legs with hind femur 4.5 times as long as wide in lateral view; inner spur of hind tibia about 1.2 times as long as the outer one; basitarsus of hind



Figs. 13 – 18. Forewings: 13, *Platylabus brilliantus* sp. nov., ♀; 14, *P. taiwanus* sp. nov., ♀; 15, *Pristiceros formosanus* (UCHIDA), ♀; 16, *P. taihorinus* (UCHIDA), ♂; 17, *P. uchidai* sp. nov., ♂; 18, *Linyces gotoi* sp. nov., ♀.

leg 2.6 times as long as the 2nd segment. Abdomen with 1st tergite virtually bare basally, weakly and loosely rugulose posteriorly, about 2.6 times as long as wide at apex; postpetiole 8/9 as long as its apical width; punctuation of 2nd and subsequent tergites very similar to *formosanus*; 2nd tergite about as long as wide at apex and 1.3 times as long as the 3rd.

Black with many yellow markings. Head (Fig. 4) with face, clypeus, frontal and tempolar orbits, palpi, mandible except for dark brown apical teeth, collar, dorsolateral band of pronotum, apical part of propleurum, a pair of short stripes of mesoscutum, scutellum except for lateral side, postscutellum, subtegular ridge, a pair of large spots of mesopleurum, mesepimeron, upper division of metapleurum, posterior 1/2 of metapleurum, posterior 1/2 of 2nd lateral area of propodeum, 3rd lateral and pleural areas of propodeum, apical band of 1st to 7th tergites, whitish yellow. Scape whitish yellow ventrally and laterally, infuscate dorsally; pedicel and flagellum infuscate; flagellum without white band. Tegula whitish yellow basally, dark brown apically. Front and middle legs



Figs. 19 – 24. Hind wings: 19, *Platylabus brilliantus* sp. nov., ♀; 20, *P. taiwanus* sp. nov., ♀; 21, *Pristiceros formosanus* (UCHIDA), ♀; 22, *P. taihorinus* (UCHIDA), ♂; 23, *P. uchidai* sp. nov., ♂; 24, *Linycus gotoi* sp. nov., ♀.

with coxae and trochanters whitish yellow, the base of coxae fuscous; femora and tibiae yellowish brown; tarsi yellowish brown to fuscous, darker apically. Hind leg with coxa blackish, the apex and apicodorsal side yellow; trochanter infuscate to dark brown, a little paler apically; femur ferruginous, infuscate on apical 2/9; tibia yellowish brown to fuscous, darker apically, with an indistinct, fuscous basal band; tarsus infuscate to black. Wings hyaline; stigma infuscate, paler medially.

Length: Body 9.7 mm., forewing 7.7 mm.

♀. Unknown.

Specimen examined: 1 ♂ (holotype of *taihorinus*, apical segments of flagellum, 2nd to 5th of left hind tarsus, and 3rd to 5th of right hind tarsus lacking), i-1927, Yakanron, K. KIKUCHI leg. The other type series (2 ♂ ♂, Taihorin, v-1910, H. SAUTER leg.), were not observed because these specimens are not preserved in the collection of the Entomological Institute, Hokkaido University, Sapporo.

Distribution: Formosa.

### 3. *Pristiceros uchidai* sp. nov. (Figs. 5, 8, 17 & 23)

*Platylabus taihorinus* Uchida, Jour. Fac. Agr. Hokkaido Imp. Univ. 33: 163, 1932.  
In part.

Having examined UCHIDA's allotype ( $\sigma$ ) of *taihorinus* it is believed that the specimen is not the male of *taihorinus*, but really that of another distinct species.

$\sigma$ . Face about 1.5 times as wide as high at level of lower margin of antennal socket; 2nd segment of maxillary palpus 2.7 times as long as wide (Fig. 8); distance between lateral ocelli and eyes as long as diameter of an ocellus. Flagellum with 15 +  $\alpha$  (apical segments lacking); 1st flagellar segment 4.1 times as long as wide at apex and 1.3 times as long as the 2nd one. Pronotum more strongly and densely punctate as in *taihorinus*, impunctate medially and ventrally; metapleurum strongly and rather sparsely punctate, with very weak, oblique striae. Propodeum with areola pentagonal, 2/3 as long as wide at costula; costula originating from apical 5/9 of areola; propodeal spiracle about 3.0 times as long as wide; petiolar area of propodeum not striate, with very fine, rather dense, setiferous punctures. Wings (Figs. 17 & 23) with areolet sessile above, receiving 2nd recurrent vein basad of the middle; stigma 3.9 times as long as wide; nervellus rather strongly reclivous, intercepted at lower 1/3. Hind femur strongly punctate, without transverse striae on dorsal side; basitarsus of hind leg about 2.5 times as long as the 2nd segment; hind femur 4.3 times as long as wide in lateral view. Abdomen with 1st tergite 2.3 times as long as wide at apex; postpetiole 4/5 as long as its apical width. Otherwise very similar to *taihorinus* in structure.

In colouration very similar to *taihorinus*. Malar space entirely black (Fig. 5). Mesopleurum with a pair of large yellow spots, the spots connected to each other by a narrow yellow band. Hind coxa more extensively yellow on dorsal side and less extensively yellow on apicoventral side than those in *taihorinus*.

Length: Body 7.6 mm., forewing 7.1 mm.

$\varphi$ . Unknown.

Holotype ( $\sigma$ ): Allotype of *taihorinus* UCHIDA, v-1910, Anping, H. SAUTER leg.

Distribution: Formosa.

This species is very closely related to the preceding species *P. taihorinus* (UCHIDA), but differs from it by the hind coxa without transverse striae on the dorsal side, the entirely black malar space, the pronotum and petiolar area of the propodeum which are not striate, etc. as mentioned in the key. The species name is dedicated to the late Dr. Tôichi UCHIDA, an authority on taxonomy of Ichneumonidae in Japan.

### 3. Genus *Linycus* CAMERON

*Linycus* CAMERON, Entomologist 36: 234, 1903. Type-species: *Linycus rufipes*

CAMERON, 1903.

*Erythroischnus* CAMERON, Trans. Amer. Ent. Soc. 30: 252, 1904. Type-species: *Erythroischnus annulicornis* CAMERON, 1904.

This is a small genus, being represented by only five described species, 1 from Palearctic, 2 from Nearctic, 1 from Neotropic, and 1 from Oriental regions. In the course of the present study has been found another species, which is new to science. *Larentia* and *Depressaria* species have been recorded as hosts of the European species (HEINRICH, 1962). The hosts of the Formosan species are unknown.

The chief distinguishing features of this genus are as follows:—

Head with frons almost flat; genal carina meeting hypostomal carina distinctly behind the base of mandible; malar space at most with a small, testaceous spot adjoining the base of mandible. Male flagellum with tyloides. Collar of pronotum narrow, with a central tubercle or carina on transverse furrow; notauli rather strongly impressed and longer than in *Platylabus* and *Pristiceros*. Propodeum with costula usually distinct or very strong; propodeal spiracle circular or at most 1.5 times as long as wide; areola more elongate. Abdomen with petiole, centrally, quadrate in section; median field of post-petiole distinct; thyridia small, minute or absent; gasterocoeli represented by an oblique furrow.

### 1. *Linycus gotoi* sp. nov. (Figs. 2, 18 & 24)

♀. Face weakly and densely punctate, 1.3 – 1.4 times as wide as high at level of lower margin of antennal socket; clypeus moderately strongly convex, densely and weakly punctate, 1.8 – 2.0 times as wide as high; malar space 1.3 – 1.5 times as long as basal width of mandible; inner margins of eyes parallel-sided; occipital carina distinct, but the lower part fadding out, so that the lower end not connected with hypostomal carina; frons bare on lower 1/2, strongly mat on upper 1/2; 2nd segment of maxillary palpus weakly swollen, 2.3 – 2.6 times as long as wide; 3rd and 4th segments of maxillary palpus normal. Antennae with 34 – 38 segments; 1st flagellar segment 4.8 – 5.1 times as long as wide at apex and 1.3 – 1.4 times as long as the 2nd. Pronotum obliquely rugulose almost entirely, weakly and densely punctate dorsally; mesoscutum strongly mat; scutellum weakly convex, weakly punctate, the punctures denser anteriorly, its lateral carina strong, extending near apex; mesopleurum finely striate-punctate almost entirely; speculum finely striate-punctate; metapleurum weakly and obliquely striate-punctate; juxtacoxal carina very weak but complete. Propodeum more or less weakly reticulate-rugose; propodeal carinae weak, the lateral longitudinal carina obsolete on 1st and 2nd lateral areas, sometimes entirely absent; areola long, 1.3 – 1.5 times as long as wide at costula; costula emitted from apical 4/5 of areola; propodeal spiracle circular, 1.0 – 1.2 times as long as wide; propodeal crest low, but distinct. Venation of wings as in Figs. 18

& 24. Abdomem with 1st tergite virtually bare medially, sparsely haired laterally and apically, 2.5 – 2.7 times as long as wide at apex; postpetiole  $5/7$  as long as its apical width, polished, with a few weak punctures on median field, and with rogulo-punctures on lateral part; 2nd tergite  $7/9 - 8/9$  as long as wide at apex and 1.5 – 1.7 times as long as the 3rd; 3rd tergite weakly mat; 4th and 5th tergites finely mat. Legs with hind femur 4.3 – 4.7 times as long as wide in lateral view; inner spur of hind tibia 1.2 – 1.3 times as long as the outer spur; basitarsus of hind leg 2.1 – 2.3 times as long as the 2nd segment. Subgenital plate rather densely haired entirely.

Black. Head (Fig. 2) with clypeus black, with a pair of large, lateral yellow spots; frontal orbit yellow, the upper part of yellow marking sometimes expanded medially; lower  $2/3$  of frontal orbit yellow; labrum whitish; mandible blackish, the apical teeth weakly tinged with dark brown; palpi light yellowish brown, the dorsal sides of 1st and 2nd segments of maxillary palpus infusate; yellow spot at top of eye circular, touching margin of eye. Antennae black; 7th to 10th or 11th flagellar segments except for under side whitish. Subtegular ridge, dorsal narrow marking of pronotum, dorsal and subventral parts of collar and a large spot of scutellum yellow. Front and middle legs with coxae black, whitish at apex and on apicoventral side; trochanters infusate to black, yellowish brown at extreme apex of each segment; femora and tibiae light ferruginous; tarsi fuscous, the last segment infusate. Hind leg with coxa black; trochanter black, the extreme apices of 1st and 2nd segments weakly tinged with dark brown; femur dark ferruginous to infusate, darker apically; tibia dark brown to infusate; tarsus infusate, the basal  $1/2$  of basitarsus yellowish brown, and the 3rd and 4th segments whitish yellow. Apex of 5th to 7th tergites whitish; subgenital plate blackish, the apex weakly tinged with dark brown. Wings hyaline; stigma dark fulvous.

Length: Body 6.4 – 7.0 mm., forewing 5.5 – 6.2 mm.

♂. Agrees with the above-mentioned description of the female, except for following aspects:—

Punctuation of face and clypeus a little weaker and sparser than those of female; malar space 1.1 – 1.2 times as long as basal width of mandible; flagellum with 33 segments; lateral longitudinal carina of propodeum distinct; areola of propodeum 1.3 times as long as wide at costula, receiving costula at apical  $4/5 - 8/9$ ; propodeal spiracle 1.1 – 1.4 times as long as wide; 1st abdominal tergite 2.8 times as long as wide at apex; hind femur 4.9 – 5.0 times as long as wide in lateral view; basitarsus of hind leg 2.0 times as long as the 2nd segment. Clypeus entirely whitish yellow, with a narrow, dark brown apical margin; face whitish yellow on lateral  $1/3$ , black on median  $1/3$ ; labial palpus infusate; antennae infusate, without yellow band, the ventral side of scape whitish. Legs a little paler than in female; front coxa infusate, the inner side and apex whitish; inner side of 1st trochanter whitish; apicoventral sides of middle coxa and 1st trochanter whitish; hind femur more extensively blackish.

Length: Body 6.7 – 7.0 mm., forewing 6.0 – 6.1 mm.



Holotype (♀): Meifeng – Tsuifeng, 2,200 – 2,300 m, Nantou Hsien, 16 – 17-iv-1984, T. GÔTO leg. Paratypes: 1 ♂, same data as holotype; 1 ♀, same data as holotype but collected by K. ÔHARA; 1 ♂, 25-iv-1981, 1 ♀, 27-iv-1981, same locality as holotype, K. ÔHARA leg; 1 ♀, 25-iv-1981, same locality as holotype, H. TAKEMOTO leg.

Distribution: Formosa.

This species is very similar to the Oriental *L. rufipes* CAMERON, but is distinguished by the punctate scutellum with a lateral carina which is present on its entire length, the clouded wings, and the entirely black outer orbit, mesoscutum, mesopleurum, tegula and postscutellum.

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