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A Revision of the Family Tetrigidae (Orthoptera) of the
Ryukyu Islands, Southern Japan, with Descriptions
of New Species and Subspecies
(Part 1)

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Abstract Four new species and 2 new subspecies of the Tetrigidae of the Ryukyu Islands (*i.e.* south of the Tokara group) are described. They belong to the subfamilies Cladonotinae, Metrodorinae, Scelimeninae and Tetriginae. Redescriptions and some remarks are given for several hitherto known species. Keys to the genera and the species are given.

Key words: Tetrigidae; new species; subspecies; Ryukyu Islands; Yaeyama group; Amami-Ôshima.

Introduction

Until the 1980's, little was made on the family Tetrigidae of the Ryukyu Islands. In 1894, FRITZE reported a kind of tetrigid, *Paratettix cingalensis* (WALKER), from this region, but this record was doubtful and probably due to misidentification. After that, REHN (1904) recorded a kind of tetrigid probably correctly from the same region, and MATSUMURA (1931) added some species though including many misidentifications and doubtful records. In 1937, ESAKI reported a tetrigid species from Amami-Ôshima as new to this island. In 1951, BEY-BIENKO recorded *Cladonotella gibbosa* (DE HAAN), but this record seems to be erroneous.

In 1986, ÔSHIRO recorded 9 species, and recently KANÔ *et al.* (1992) recorded 12 species from this region. In the present paper I treated all the species hitherto known from the Ryukyu Islands, with descriptions of six new species and three new subspecies.

All the type specimens and most of the type series will be deposited at Osaka Museum of Natural History (OMNH).

Key to the Subfamilies

1. Frontal costa widened and flat between antennae (Fig. 6). Body stout, humeral angle roundly or triangularly produced laterally (Figs. 1 & 4), posterior end of pronotum notched. Apterus Cladonotinae

- Frontal costa almost sulcate (Fig. 15). Posterior end of pronotum not notched 2
- 2. Combined length of second and third tarsal segments of hind leg almost equal or slightly shorter than metatarsus (Figs. 12, 18, 23) Metrodorinae
- Combined length of second and third tarsal segments of hind leg distinctly shorter than metatarsus (Figs. 28, 33, 39, 50, 58, 69, 77, 83) 3
- 3. Pronotum with distinct lateral spine (Figs. 24, 35) or if lacking prozona of pronotum distinctly longitudinally elongate and keels converging posteriorly (Fig. 49) Scelimeninae
- Pronotum without lateral spine (Fig. 52). Prozona of pronotum longitudinally slightly elongate or wider than long (Figs. 62, 67, 76, 81) Tetriginæ

Subfamily Cladonotinae

Genus *Austrohancockia* GÜNTHER, 1938

Type species: *Hancockia kwangtungensis* TINKHAM, 1936 [♀, Loh Fau Shan, Kwangtung, China], by original designation.

Syn. *Pseudohancockia* ZHENG et LIANG, 1978.

Type species: *Hancockia kwangtungensis* TINKHAM, 1936, by original designation. Synonymized by LIANG and ZHENG, 1991.

This genus contains 5 species described from China (including Taiwan) and Japan (Ryukyu Islands). *Gibbotettix* ZHENG, 1992 might be also synonymous with *Austrohancockia*.

Key to the Species

- 1. Humeral angle of pronotum triangularly produced (Fig. 1) *Austrohancockia okinawensis*
- Humeral angle of pronotum strongly roundly produced (Fig. 4) *Austrohancockia platynota amamiensis*

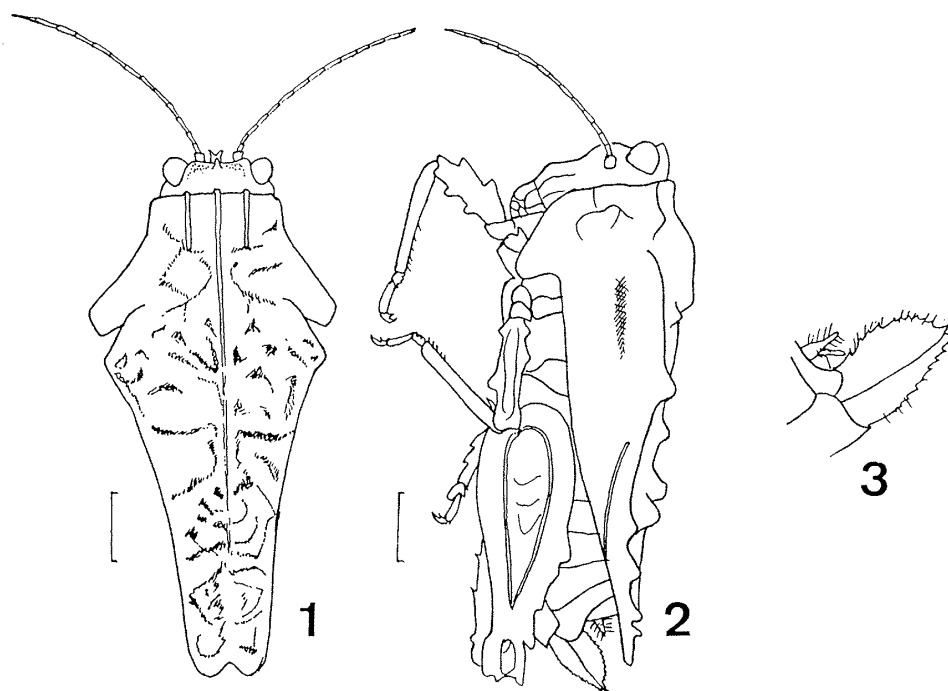
Austrohancockia okinawensis YAMASAKI, 1994

(Figs. 1–3)

Austrohancockia platynota: KANÔ *et al.*, 1992, 122, 124. (Part.)

Austrohancockia okinawensis YAMASAKI, 1994, 48–49, figs. 3, 4, 9, 11, 13. [♀ Yona, Okinawa]

Size medium for the genus. Head relatively large; vertex wide, about 4 times as wide as an eye, hardly produced in front of eyes; eyes small; frontal costa divergent between the sockets of antennae; ocelli small; base of antenna situated below the lower margin of an eye (Fig. 2), antennae filiform, long and slender, 13 to 15-segmented. Pronotum robust, anterior margin truncate; prozona longer than wide, lateral carinae of prozona converging backwards; humeral angle produced laterally



Figs. 1–3. *A. okinawensis* — 1, Head and pronotum, dorsal view; 2, entire insect, lateral view; 3, ovipositor. Each scale shows 2 mm (same as in the following figures).

in shape of a triangle, overhanging the lateral part of pronotum (cf. Fig. 7); median carina with its anterior part weakly raised; dorsum of pronotum coarse, with many low but distinct nodules; hind process with notched end; tegminal sinus absent; lateral carina distinct. Legs with many lobules, especially in front femora (Fig. 2); posterior femora with two low and blunt lobules on upper keel. First metatarsus slightly longer than combined length of second and third tarsal segments. Ovipositor relatively robust (Fig. 3).

Coloration. Usually brown, but rarely more vividly colored (cf. KANÔ *et al.*, 1992, p. 122).

Measurements (mm): Length of body (BL) ♂ 13, ♀ 13–15; length of pronotum (PL) ♂ 10.5, ♀ 11.3–13.3; length of hind femur (FL) ♂ 7.3, ♀ 5.8–6.0; length of ovipositor (OL) 1.8.

Remarks. This species has been collected from several islands of the Ryukyu Archipelago (Okinawa I., Tokashiki I., Ishigaki I. and Iriomote I.).

Biology. Fundamentally forest-dweller.

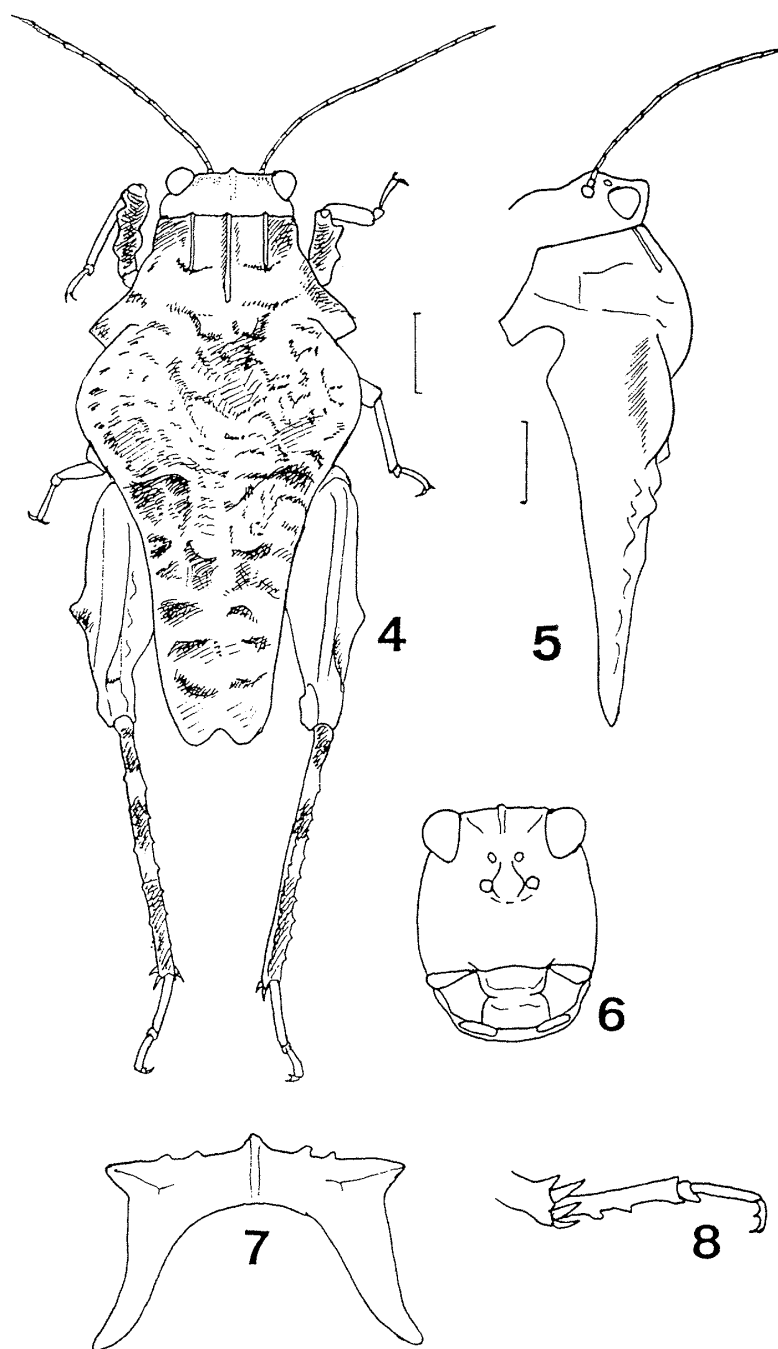
Austrohancockia platynota amamiensis YAMASAKI, 1994

(Figs. 4–8)

Potua platynota: ESAKI, 1917, 25, pl. 3, 3; ISHIHARA, 1945, 50, pl. 35, no. 11; HIURA, 1977, 76, pl. 24, no. 273.

Austrohancockia platynota: ÔSHIRO, 1986, 111.

Austrohancockia platynota amamiensis YAMASAKI, 1994, 47–48, figs. 1, 2, 7, 8, 10, 12 [♀ Kinsakubaru, Amami-Ôshima Is.]



Figs. 4–8. *Austrohancockia platynota amamiensis* — 4, Entire insect, dorsal view; 5, head and pronotum, lateral view; 6, face; 7, pronotum, frontal view; 8, hind tarsus.

Very close to the preceding species. Size large for the genus. Head as in *A. platynota*. Vertex wide, about 4 times wider than an eye. Eyes small, not prominent. Frontal costa divergent at the antennal socket (Fig. 6), which is situated distinctly below the lower margin of an eye. Antennae filiform, 15-segmented. Pronotum coarse with numerous protuberances of various size, prozona quadrate, humeral angles roundly and strongly produced sideways, without tegminal notch, hind process with roundly notched anterior part of pronotum obviously arched. Legs with numerous protuberances like those of the preceding species. Metatarsus longer than combined length of second and third tarsal segments, and each pulvillus with blunt apex (Fig. 8). Ovipositor short and broad.

Coloration. Usually brown (fallen leaf color).

Measurements (mm): BL ♂ 10.0, ♀ 14.5; PL ♂ 9.0, ♀ 13.3; FL ♂ 5.8, ♀ 7.0; OL 1.9.

Biology and notes. Found on forest floor or trunk of trees. Firstly captured from Amami-Ōshima Island on trunk of tree by the late Dr. Keizo YASUMATSU and recorded by the late Dr. Teiso ESAKI in 1937 as *Potua platynota*.

Subfamily **Metrodorinae**

Key to the Genera

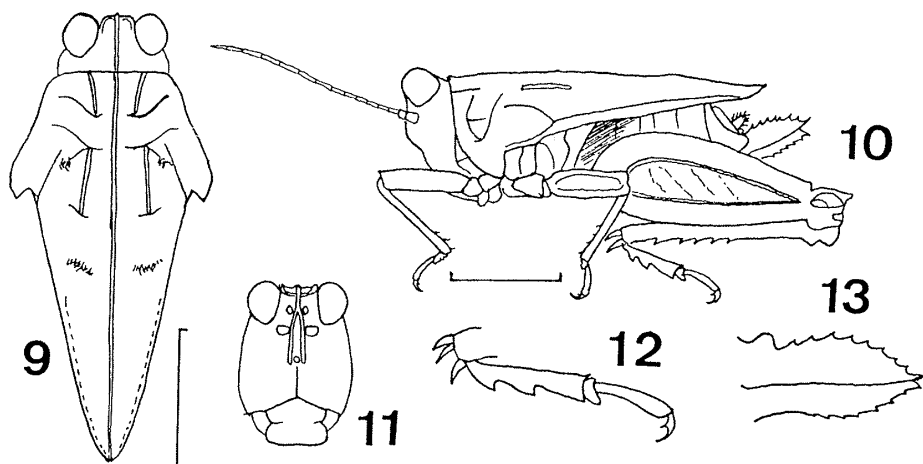
1. Macropterous. Body slender (Fig. 14), resembling *Euparatettix*, but hind femur more robust. Eyes prominent, vertex tapering anteriorly (Fig. 16). *Systolederus*
- Brachypterous or apterous. Tegmina and wings concealed under pronotum or lacking 2
2. Body small, less than 8 mm. Eyes feebly prominent. Pronotum with a pair of longitudinal protuberance (Fig. 9), rather stright dorsally in lateral view (Fig. 10) *Salomonotettix*
- Body large, longer than 8.5 mm. Eyes not prominent. Pronotum rough and convex in lateral view (Fig. 19). Antennal sockets situated below the lower margin of eye (Fig. 20) *Pseudogignotettix*

Genus ***Salomonotettix*** GÜNTHER, 1939

Type-species: *Hyboella leveri* GÜNTHER, 1935 [♀♀, Salomon Islands] by original designation.

Syn. *Amphinotulus* GÜNTHER, 1919, 135–138. Synonymized by GÜNTHER himself in 1939 (in the same paper). Type-species: *Amphinotulus overbecki* GÜNTHER, 1939 by original designation.

This genus contains four species described from Indonesia to the Salomon Islands. A new species from Japan (the Yaeyama Group) is described below.



Figs. 9–13. *Salomonotettix hygrophilus* sp. nov. — 19, Head and pronotum, dorsal view; 20, entire insect, lateral view; 21, face; 22, hind tarsus; 23, ovipositor.

Salomonotettix hygrophilus sp. nov.

(Figs. 9–13)

Salomonotettix sp.: ŌSHIRO, 1984, 112; KANŌ *et al.*, 1992, 122, 124.

Holotype: ♀, Mt. Omoto, alt. 300 m, Ishigaki I., Okinawa Pref., 23. vi. 1976 (Y. MIYATAKE). Paratypes: 2 ♂, same data and collector as for the holotype; 1 ♀, Mt. Banna, Ishigaki I., 18. v. 1979 (M. OKADA); 2 ♂ 2 ♀, Kuwakiyama, alt. 150 m, Iriomote I., Okinawa Pref., 7. iv. 1987 (S. & T. FUJII); 1 ♂ 1 ♀, Gunkan'iwa-Sight-seeing site, Urauchi River, Iriomote I., 22. viii. 1983 (A. ICHIKAWA).

Small-sized. Head slightly prominent above the level of pronotum. Vertex narrower than an eye. Frontal costa round in profile. Eyes slightly produced upwards. Antennae filiform, very slender, 15-segmented, situated partly below the lower margin of eyes. Face as in fig. 11. Pronotum flattened, prozona subquadrate narrowing backwards, with very faint tegminal notch (Fig. 10), lateral carinae obsolete, but with a pair of weak short carinae on dorsum of pronotum (Fig. 9). Hind apex of pronotum rounded. Tegmina and wings strongly abbreviated. Legs without prominent tubercles, hind tarsi as in Fig. 10, metatarsus slightly longer than combined length of second and third tarsal segments, apex of each pulvillus relatively blunt (Fig. 12). Ovipositor short and relatively narrow (Fig. 13).

Coloration. Usually uniformly brown.

Measurements (mm): BL ♂ 5.9–7.4, ♀ 7.3–7.8; PL ♂ 4.0–4.3, ♀ 5.6–5.9; FL ♂ 4.3–4.7, ♀ 4.4–4.8; OL 1.2–1.4.

Remarks. This species is closely related to *S. overbecki* (GÜNTHER, 1939), but slightly smaller.

Biology. Found at dark wet place in the forest.

Genus *Systolederus* BOLÍVAR, 1887

Type species: *Systolederus haani* BOLÍVAR, 1887 [♂♀, Philippines], designated by KIRBY (1910).

This genus contains approximately 15 species from Southeast Asia. A new species from Amami-Ōshima is described below.

Systolederus japonicus sp. nov.

(Figs. 14–18)

Systolederus sp.: KANÔ *et al.*, 1992, 134, 136.

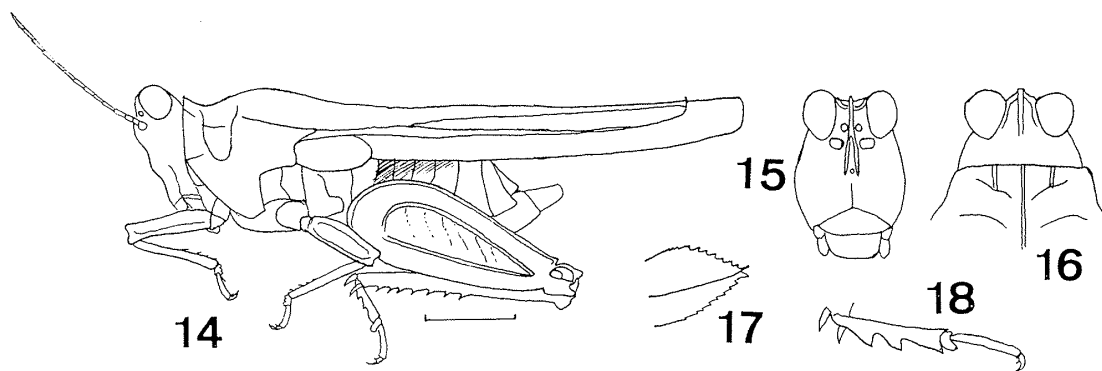
Holotype: ♂, Shinmura, Sumiyo-son, Amami-Ōshima I., Kagoshima Pref., at light, 3.vii. 1986 (K. HARUSAWA). Paratypes: 1 ♂ 1 ♀, same data and collector as for the holotype.

Slender and macropterous. Head evidently prominent above the level of pronotum (Fig. 14), Vertex narrower than an eye, fastigium of vertex tapering anteriorly (Fig. 16), merging with frontal costa and rounded in profile. Eyes prominent, distinctly produced upwards. Antennae filiform, 14 to 15-segmented, situated partly below the lower margin of eyes. Face as in fig. 15. Pronotum long and lanceolate, dorsum relatively smooth and flattened, in profile almost straight except anterior margin, which curved upwards; prozona distinctly wider than long (Fig. 18), hind process surpassing apex of abdomen and tip of hind femur, lateral carinae weakly pronounced. Elytra as wide as middle femora; hind wings macropterous. Hind femur robust, relatively wider than that of the species of *Euparatettix*. Metatarsus as long as or slightly shorter than combined length of second and third tarsal segments (Fig. 18), each pulvillus with relatively blunt apex. Ovipositor short and relatively narrow (Fig. 17).

Coloration. Uniformly brown.

Measurements (mm): BL ♂ 12.0–12.5, ♀ 12.5; PL ♂ 10.3–11.2, ♀ 11.0; FL ♂ 4.5–5.0, ♀ 5.7; OL 1.7.

Remarks. This new species is most closely related to *S. boettcheri* GÜNTHER,



Figs. 14–18. *Systolederus japonicus* sp. nov. — 14, Entire insect, lateral view; 15, face; 16, head and anterior part of pronotum, dorsal view; 17, ovipositor; 18, hind tarsus.

1939, but slightly smaller and vertex relatively wide.

Biology. Captured at light source situated in a riverbed.

Genus *Pseudogignotettix* LIANG, 1990

Type species: *Pseudogignotettix guangdongensis* LIANG, 1990 [♂, Shixing County, Guangdong Province, China], by monotypy.

This genus has been monotypic so far. A new additional species from Amami-Ōshima is described below.

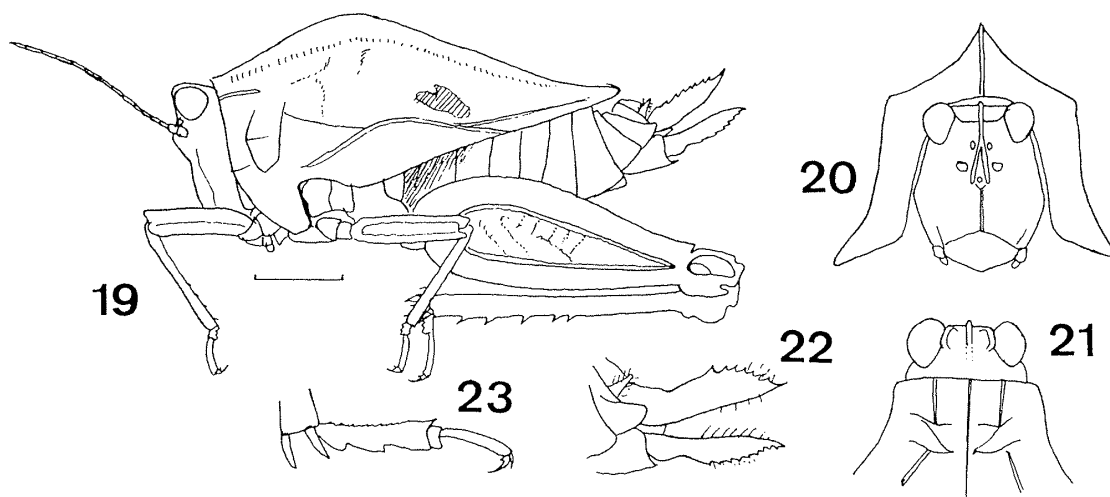
Pseudogignotettix amamiensis sp. nov.

(Figs. 19–23)

Pseudogignotettix sp.: KANO *et al.*, 1992, 135–137.

Holotype: ♀, Yuwandake, Amami-Ōshima I., Kagoshima Pref., 4. vii. 1986 (O. TOMINAGA). Paratype: 1 ♂, Akatsukiyama-forestryroad, Amami-Ōshima I., 2. vii. 1986 (O. TOMINAGA).

Body large and robust. Head not prominent. Vertex slightly wider than an eye (Fig. 21), not project at the level as front of eyes, truncate in dorsal view. Fastigium of vertex merging with a front carina, rounded in profile. Front costa not divergent, but sulcate between lateral ocelli (Fig. 20). Base of each antenna situated distinctly below an eye; antennae filiform, 14-segmented, some median segments long. Pronotum with anterior margin truncate, prozona subsquare (Fig. 21); in profile highly arched and median carina edge-shaped, lateral carinae present and relatively short, surface uneven, without tegminal notch (Fig. 19), hind margin



Figs. 19–23. *Pseudogignotettix amamiensis* sp. nov. — 19, Entire insect, lateral view; 20, head and pronotum, frontal view; 21, head and anterior part of pronotum, dorsal view; 22, ovipositor; 23, hind tarsus.

angular but somewhat rounded in dorsal view, not reaching to apex of abdomen. Legs without evident lobules nor nodules, middle femora with almost straight lower margin, hind femora relatively stout, metatarsis slightly longer than combined length of second and third tarsal segments (Fig. 23). Ovipositor long and narrow (Fig. 22).

Coloration. Almost uniformly dark brown with a pair of black oblique spots on dorsum of pronotum.

Measurements (mm): BL ♂ 8.9, ♀ 14.0; LP ♂ 6.8, ♀ 8.4; FL ♂ 6.0, ♀ 7.0; OL 2.0.

Remarks. This new species can be easily distinguished from *P. guangdongensis* by the shape of pronotum.

Notes. In current classification, this genus can be included in the Metrodorinae, but this species shows two black spots on pronotum like many genera of the Tetriginae. On the contrary, most species hitherto included in the Metrodorinae have no black spots on pronotum and fundamental color pattern is different from most genera of the Tetriginae (except *Coptotettix* and its allied genera). I assume that the genus *Pseudogignotettix* is an intermediate taxon between Metrodorinae and Tetriginae, and it might have old origin like the ancient genus of hare (*Pentalagus*; Mammalia) also living in Amami-Ōshima Island.

Biology. A forest-dweller.

Subfamily Scelimeninae

Key to the Genera

1. Lateral spine of pronotum present. 2
- Lateral spine of pronotum lacking (Fig. 46) *Hyboella*
2. Pronotum with numerous nodules (Fig. 24). Eyes round, antennal sockets situated distinctly below the lower margin of eyes (Fig. 25). Antennae filiform, very long. *Platygalialidium*
- Pronotum without nodules (Fig. 35). Antennal sockets situated at about lower margin of eyes. 3
3. Eyes prominent; anterior margin of pronotum curved upwards (Fig. 31). *Eucriotettix*
- Eyes not prominent; anterior margin of pronotum not curved upwards (Fig. 37). *Criotettix*

Genus *Platygalialidium* GÜNTHER, 1938

Type species: *Eugavialidium formosanum* TINKHAM, 1936 [♂, Taipei, Taiwan], by original designation.

This genus contains 5 species, and is distributed from Southeast Asia to New Guinea.

Platygalialidium formosanum (TINKHAM, 1936)

(Figs. 24–29).

Gavialidium philippinum: KARNY, 1915, 78 (err. det.); MATSUMURA, 1931, 1364–1365; SHIRAKI, 1932, 2059, et auct. nec BOLÍVAR, 1887.

Eugavialidium formosanum TINKHAM, 1914, 207–210; TINKHAM, 1917, 230.

Platygalialidium formosanum: GÜNTHER, 1938, 376; ŌSHIRO, 1986, 109; KANÔ *et al.*, 1992, 123, 125.

Small for the genus, but the largest among the Japanese species of the Tetrigidae. Head slightly produced upwards (Fig. 26); vertex wider than an eye, not produced in front of eyes. Antennae very long, filiform, 14 or 15-segmented. Eyes small and prominent. Face as in fig. 25; frontal costa somewhat divergent between sockets of antennae, which situated distinctly below lower margin of eye. Pronotum with numerous tubercles (Fig. 24), lateral spine acute with few dentations on the basal part, frontal margin truncate with three tubercles, prozona longer than wide, humeral angle with weak protuberance; dorsal surface flat but granulate, in profile angulately undulate; hind process surpassing apex of abdomen; lateral carinae obsolete. Tegmina oval, hind wings well developed and capable of flying. Legs with many protuberances. Hind femora relatively slender, hind tibiae with dentate dorsal margin. First metatarsis distinctly longer than combined length of second and third tarsal segments, pulvilli with blunt apex and widely spaced (Fig. 28). Ovipositor long and narrow (Fig. 27), but wider than that of *Criotettix* or *Eucriotettix*.

Coloration. Fundamentally brown, but often with dark green spots on the body and lighter colored parts observed. Apical joint of each antenna whitish, and rest of antenna black.

Measurements (mm): BL ♂ 18.2–19.2, ♀ 21.0–23.0; PL ♂ 15.5–18.5, ♀ 18.0–19.0; FL ♂ 7.0–7.2, ♀ 8.6–8.7; OL 2.1 (measurements of the males are cited after TINKHAM, 1936 and GÜNTHER, 1938 a).

Biology. Lives in dark wet place of forests, often captured together with *Salomonotettix hygrophilus* sp. n. (in Iriomote Island).

Distribution. Taiwan, Yaeyama Group (Ishigaki and Iriomote Is.).

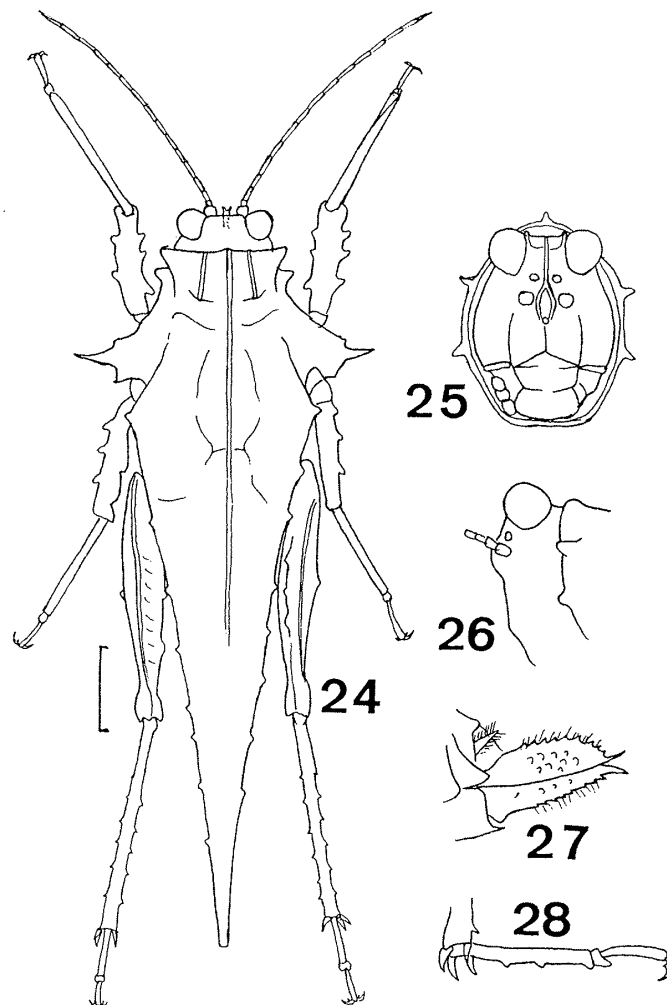
Genus *Eucriotettix* HEBARD, 1929

Type species: *Criotettix tricarinatus* BOLIVAR, 1887 [♂♀, Ceylon (Sri Lanka)], by original designation.

This genus contains 21 species from South and Southeast Asia.

Eucriotettix oculatus (BOLÍVAR, 1898)

According to GÜNTHER (1938 b, 177) this species is widespread in Southeast Asia, and divided into four subspecies, one of which is distributing from Southern



Figs. 24–28. *Platygavalidium formosanum* — 24, Entire insect, dorsal view; 25, head and anterior part of pronotum, frontal view; 26, ibid., lateral view; 27, ovipositor; 28, hind tarsus.

China, Taiwan to the southern Ryukyu Islands. He did not name this subspecies because of unsatisfactory descriptions by WALKER (1871), who was concerned with some other species to describe from this area.

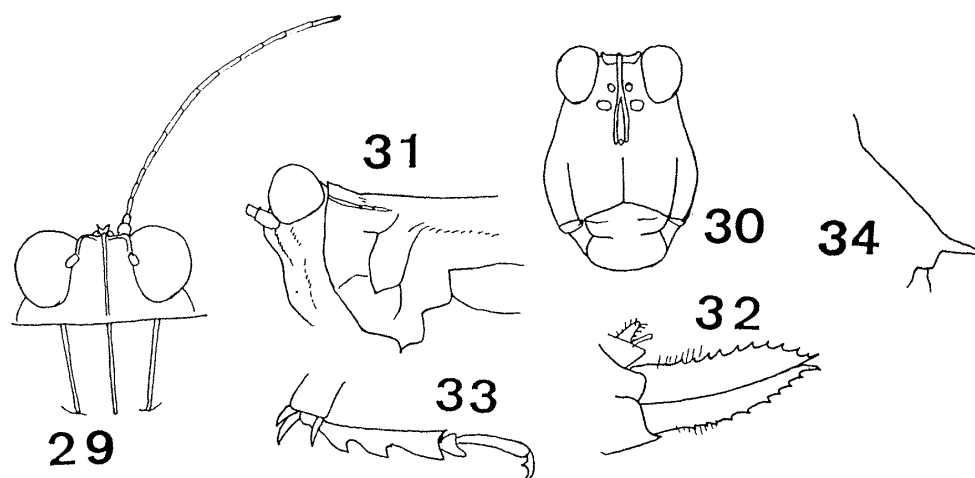
Now, I give a new name for this unnamed subspecies in honour of the late Dr. Klaus GÜNTHER.

Eucriotettix oculatus guentheri ssp. nov.

(Figs. 29–34)

Eucriotettix oculatus: ŌSHIRO, 1986, 108; KANÔ *et al.*, 1992, 126, 128.

Holotype: ♀, Funaura, Iriomote I., Okinawa Pref., 2. x. 1978 (T. KOHAMA).



Figs. 29–34. *Eucriotettix oculatus guentheri* ssp. nov. — 29, Head and prozona of pronotum, dorsal view; 30, face; 31, head and anterior part of pronotum, lateral view; 32, ovipositor; 33, hind tarsus; 34, right lateral spine of pronotum, dorsal view.

Paratypes: 6 ♂ 8 ♀, same data and collector as the holotype; 3 ♂ 2 ♀, Kampirei Fall, Iriomote I., 25. vi 1976 (Y. MIYATAKE); 3 ♂, Mt. Kuwakiyama, alt. 150 m, Iriomote I. 7. iv. 1987 (S. & T. FUJII); 1 ♂ 2 ♀, Arakawa, Ishigaki I., 10. iii. 1975 (Y. SHIBATA); 3 ♂ 4 ♀, Middle Nagura R., Ishigaki I., 4. xi. 1981 (O. TOMINAGA). And many additional specimens from Yaeyama Group and N. Taiwan are deposited in the collection of OMNH.

This subspecies seems to be a largest one of the four subspecies of *Eucriotettix oculatus*.

At a glance, it resembles *Criotettix saginatus*, but larger and anterior margin of pronotum curved upwards. And antennae are thinner and longer. Lateral spine of pronotum is more acute.

Head slightly prominent (Fig. 31). Fastigium of vertex as wide as or slightly narrower than an eye, anteriorly tapering (Fig. 29), eyes raised upwards and more produced beyond dorsal surface of pronotum (Fig. 31). Fastigium truncate in dorsal view. Frontal costa invisible in profile. Sockets of antennae situated partly below lower margin of eye. Antennae 15-segmented, thin and long. Face as in fig. 30, frontal costa sulcate between sockets of antennae. Pronotum with anterior margin truncate, curved upwards; prozona longer than wide, converging posteriorly; lateral spines acute, slightly projecting backwards (Fig. 34); dorsum of pronotum flat, without evident granules; hind process long, surpassing posterior apex of abdomen; apex of pronotum reaching just apices of hind wings. Elytra wider than median femora; hind wings always long. Legs without evident nodules; hind femora relatively slender, hind tibiae with dentate dorsal margin, and somewhat dilated. First metatarsus evidently longer than combined length of second and third tarsal segments, each pulvillus with relatively acute apex (Fig. 33).

Ovipositor long and very narrow (Fig. 32).

Coloration. Usually uniformly brown, sometimes light brown on dorsum of pronotum.

Measurements (mm): BL ♂ 16.0–16.3, ♀ 20.3–20.4; PL ♂ 14.2–14.8, ♀ 18.9–19.0; FL ♂ 6.0–6.1, ♀ 8.0–8.2; OL 2.0.

Biology. Prefers sunny mountain streams, feeds on lichens or mosses on the rocks of stream.

Genus *Criotettix* BOLÍVAR, 1887

Type species: *Acrydium bispinosum* DALMAN, 1818 [? (sex unknown), East India], selected by REHN (1904).

This genus contains 12 species chiefly from Southeast Asia.

Key to the Species

1. Vertex distinctly wider than eye (Fig. 37). Antennae with basal segments whitish, apical ones brownish and thick. . . . *C. japonicus okinawanus* ssp. n.
- Vertex slightly or hardly wider than eye (Fig. 43). Antennae relatively thin and uniformly brown *C. saginatus*

Criotettix japonicus (DE HAAN, 1842)

The nominotypical subspecies is known from Japan (Hokkaido, Honshu, Shikoku, Kyushu and Tsushima) and China (Fukien Province). A new subspecies from the Ryukyu Islands is described below.

Criotettix japonicus okinawanus ssp. nov.

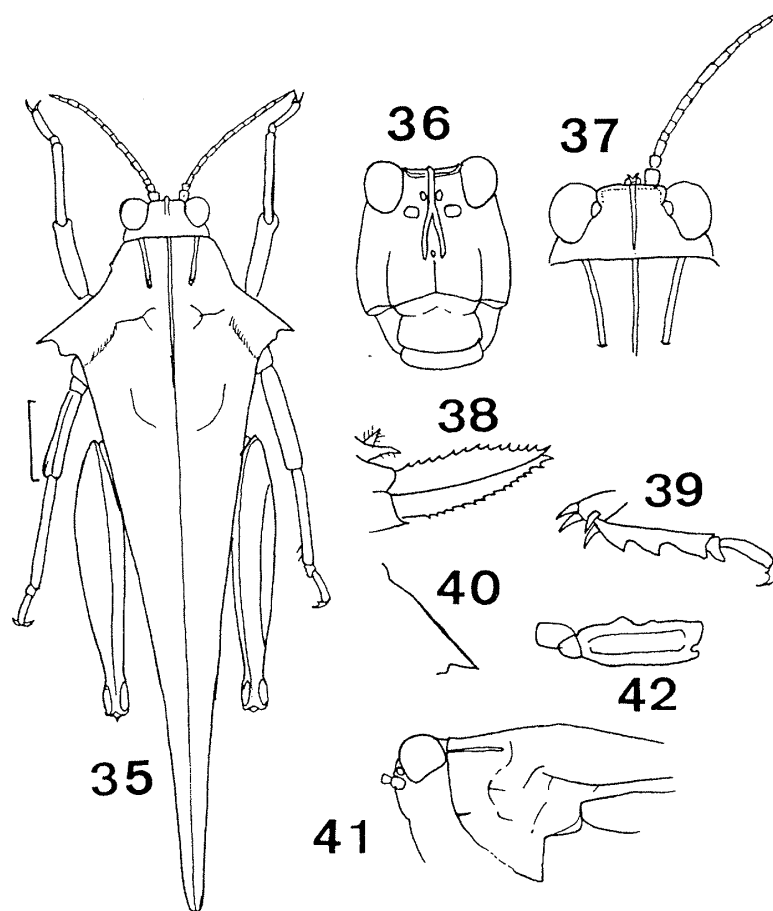
(Figs. 35–42)

Criotettix sp.: ÔSHIRO, 1986, 107.

Holotype: ♀, Hentona, Ueshima, paddy field, Kunigami-gun, Okinawa Is., Okinawa Pref., 15. xi. 1977 (I. HIURA). Paratypes: 3 ♂, same data and collector as the holotype; 1 ♀, Naze-Asato, Amami-Ôshima I., 25. vi. 1970 (Y. MIYATAKE), 1 ♂, Kushiken, China-cho, Okinoerabu I., 28. vii. 1964 (Y. SHIBATA); 1 ♀, Haneji, Kunigami-son, Okinawa I., 27. viii. 1983 (A. ICHIKAWA).

Slightly smaller than the nominotypical subspecies. Body relatively small and posterior process of pronotum shorter. Lateral spine of pronotum slightly shorter, and slightly projecting backwards, with acute apex.

Head similar to the nominotypical subspecies, vertex wider than eye, approximately 1.4 times as wide as eye (Fig. 37). Fastigium of vertex truncate in dorsal view, not projecting beyond eyes. Front costa in profile almost straight without



Figs. 35–42. *Criotettix japonicus okinawanus* ssp. nov. — 35, Entire insect, dorsal view; 36, face; 37, head and prozona of pronotum, dorsal view; 38, ovipositor; 39, hind tarsus; 40, right lateral spine of pronotum, dorsal view; 41, head and anterior part of pronotum, lateral view; 42, female middle femur.

emargination (Fig. 41). Eyes not prominent above the level of pronotum (Fig. 41). Antennae thick, 15-segmented, thickness of antennae intermediate between *Cr. japonicus japonicus* and *Cr. saginatus* (Fig. 37), median segments of antennae 2–3 times as long as wide. Face as in fig. 36. Pronotum flat, with anterior margin truncate (Figs. 35 & 37); prozona subquadrate, slightly longer than wide, and tapering backwards (Fig. 37). Lateral spine short and acute, slightly projecting backwards (Fig. 40). Dorsum of pronotum flat, median carina and lateral carinae obsolete. Tegmen as in the nominotypical subspecies, hind wings always macropterous, reaching to apex of pronotum, and surpassing abdominal end. Legs without obvious protuberances; hind femora relatively slender; hind tibiae with dentate and dilated dorsal margin. First metatarsus obviously longer than combined length of second and third tarsal segments; pulvilli with slightly acute apex (Fig. 39). Male subgenital plate long. Ovipositor long and narrow (Fig. 38).

Coloration. Usually reddish brown.

Measurements (mm): BL ♂ 15.2–16.0, ♀ 17.0–18.3; PL ♂ 14.0–15.0, ♀ 16.1–17.0; FL ♂ 5.8–6.6, ♀ 7.3–7.8; OL 2.0–2.2.

Biology. Prefers wet place near water (pools, paddy fields).

Criotettix saginatus BOLÍVAR, 1887

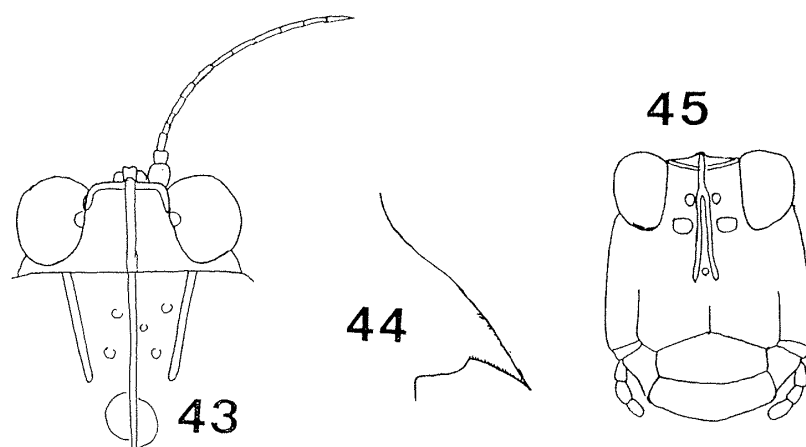
(Figs. 43–45)

Criotettix saginatus: BOLÍVAR, 1887, 225–226 [♀, Java].

Criotettix saginatus: GÜNTHER, 1918, 134–142, figs. 15–23.

After GÜNTHER (1938 b), this species and *C. bispinosus* (DALMAN, 1818) are very similar to each other, but can be distinguished chiefly by the females. And he wrote that the populations of Taiwan should be referred to *C. saginatus* sensu GÜNTHER (1938 b). I assume that the populations of the Yaeyama Group might be long to this form. A redescription is given below.

Smaller than the preceding species. Head with vertex slightly wider than or almost as wide as eye (Fig. 43). Fastigium of vertex truncate and not produced forwards, basic structure of head almost as same as the preceding species. Antennae thick, but distinctly thinner than those of the preceding species (Figs. 37 & 43), and thicker than those of *Eucriotettix oculatus guentheri* (Figs. 43 & 29), 14 to 15-segmented, middle segments 3~3.5 times as long as wide. Face as in fig. 39. Pronotum with very small nodules, anterior margin truncate, not raised upwards; prozona almost as long as wide, tapering backwards (Fig. 43); lateral spine acute, rojecting backwards (Fig. 44). Dorsum of pronotum flat, median and lateral carinae obsolete; posterior process relatively short. Tegmen as in *C. japonicus okinawanus*, hind wing always macropterous, reaching apex of pronotum and surpassing abdominal end. Legs without obvious nodules; median femora with almost straight inferior margin (Fig. 42); hind femora slender; hind tibiae as in the preceding species. Male subgenital plate long. Ovipositor long and narrow.



Figs. 43–45. *Criotettix saginatus*. — 43, Head and prozona of pronotum, dorsal view; 44, right lateral spine of pronotum, dorsal view; 45, face.

Coloration. Usually reddish brown.

Measurements (mm): BL ♂ 15.0–15.2, ♀ 16.8; PL ♂ 14.0–14.8, ♀ 15.8; FL ♂ 7.2–7.6, ♀ 8.7; OL 2.0.

Biology. Almost the same as for the preceding species.

Genus *Hyboella* HANCOCK, 1915

Type species: *Hyboella tentata* HANCOCK, 1915 [♂♀, N. S. Assam (India)] by original designation.

This genus contains approximately 14 species from Southeast Asia, and is quite heterogeneous. A new species from Yonaguni Island is described below.

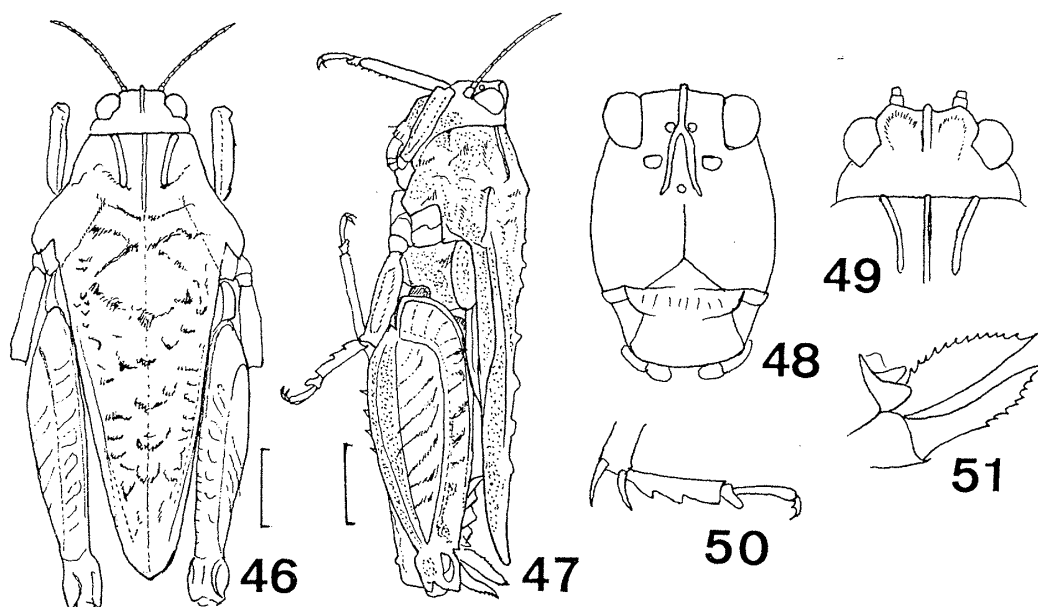
Hyboella aberrans sp. nov.

(Figs. 46–51)

Hyboella sp.: ÔSHIRO, 1986, 110; KANÔ *et al.*, 1992, 134, 136.

Holotype: ♀, Sonai, Yonaguni I., Okinawa Pref., 15–18. iii. 1983 (Y. ÔSHIRO). Paratype: ♂, same data and collector as for the holotype.

Body robust, with numerous flat nodules chiefly on dorsum of pronotum (Figs. 46 & 47). Head relatively small; vertex nearly 2 times as wide as eye; fastigium of vertex produced forwards (Fig. 49), but never raised upwards, frontal margin truncate. Front costa almost straight between eyes in profile. Eyes small, not prominent. Antennae situated partly below eyes, short and thin, 14-segmented.



Figs. 46–51. *Hyboella aberrans* sp. nov. — 46, Entire insect, dorsal view; 47, entire insect, lateral view; 48, face; 49, head and prozona of pronotum, dorsal view; 50, hind tarsus; 51, ovipositor.

Face as in fig. 48, frontal costa divergent ventrally. Pronotum rough, with coarse low projections and nodules; anterior margin truncate, prozona subsquare, longer than wide, lateral carinae of prozona convergent backwards (Fig. 49); lateral (oblique) carinae reaching humeral angle, obsolete backwards. Hind process of pronotum short, apex round. Dorsum of pronotum flat. Tegmen narrow, as wide as middle femur. Hind wings relatively short (Fig. 47), visible part twice as long as that of tegmen. Legs with very low protuberances; hind femora relatively robust; hind tibiae with dentate and not widened dorsal margin. First metatarsus slightly longer than combined length of second and third tarsal segments. Ovipositor long and relatively narrow (Fig. 51).

Coloration. Light testaceous.

Measurements (mm): BL ♂ 9.7, ♀ 11.8; PL ♂ 8.2, ♀ 10.3; FL ♂ 5.7, ♀ 6.6; OL 2.0.

Remarks. Closely related to *H. perakensis* GÜNTHER, 1939, but slightly smaller.

Biology. Unknown.

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- (Those with an asterisk (*) were not seen by me.)

(To be continued)

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