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## SCOTTOTYMPANA, A NEW CICAD GENUS FROM NEW GUINEA, WITH THE DESCRIPTION OF THREE NEW SPECIES, THEIR TAXONOMY AND BIOGEOGRAPHY (HOMOPTERA, TIBICINIDAE)

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### ABSTRACT

The genus *Scottotympana* is erected for three species: *S. biardae* n. sp. and *S. sahebdivanii* n. sp. from northern New Guinea and *S. huibregtsae* n. sp. from North-East New Guinea and New Britain. The genus belongs to a complex of genera grouped around *Baeturia* Stål and is most closely related to the genera *Gymnotympana* Stål and *Venustria* Goding & Froggatt of this complex. A key to the males and a map of distribution are presented. The distribution of the genus suggests an Outer Melanesian Arc pattern.

### INTRODUCTION

Material of three undescribed and closely related species was found in the collections of the Bernice P. Bishop Museum (BPBM), Honolulu and the Natural History Museum (BMNH), London. These species belong to the “*Baeturia* and related genera complex” as defined earlier (De Boer, 1990), but could not be placed in any of the genera attributed to that complex. *Scottotympana* is erected to accommodate these species. The monophyly of the genus is established and its taxonomic position within the “*Baeturia* and related genera complex” is discussed.

The present paper is part of a taxonomic revision of the “*Baeturia* and related genera complex”, which is undertaken in connection with a historical biogeographic study of New Guinea and the West Pacific islands.

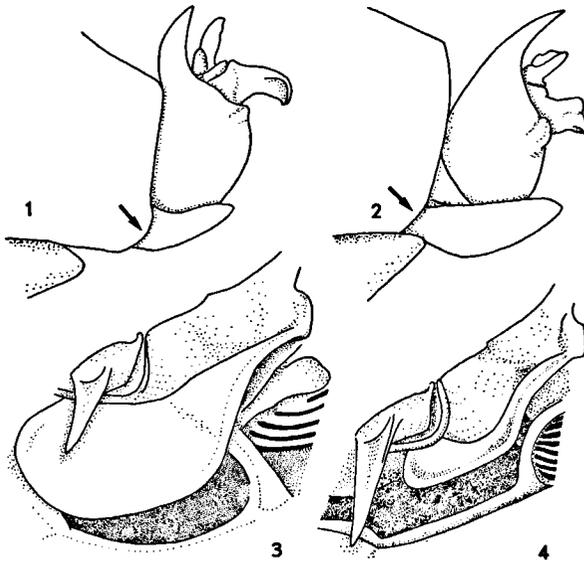
### PHYLOGENY

The monophyly of *Scottotympana*  
*Scottotympana* is characterized by three supposed apomorphies, all concerning male characters:

(1) Apical part of clasper very smooth and oblong-shaped in lateral view; and supporting aedeagus in upright position with its rounded and inwards protruding proximodorsal corner (figs. 15, 22, 28 arrows). Both, shape and protrusion, are considered synapomorphic.

(2) Lateral crests of aedeagus very broad and rectangular at their proximal end (figs. 12, 13, 20, 29).

(3) Hind margin of 8th tergite strongly convex close to 7th sternite, forming a small hindwards directed lobe (compare figs. 1 and 2, arrows).



Figs. 1-4. 1, caudal part of abdomen, *Scottotympana sahebdivanii*; 2, caudal part of abdomen, *Baeturia* spec; 3, male operculum, *Scottotympana sahebdivanii*; 4, male operculum, *Aedeastria sepia*.

#### The taxonomic position of *Scottotympana*

An S-curved aedeagus with wing-shaped lateral crests is the supposed synapomorphy for the “*Baeturia* and related genera complex” (De Boer, 1990). *Scottotympana* is attributed to this complex, since the aedeagi of the three *Scottotympana* species are distinctly S-curved and provided with large lateral crests.

The phylogenetic relationships between the various genera and species groups of the complex are still obscure. And since its sister group is unknown, no decisions about apomorphy or plesiomorphy of more widely distributed character-states can be made. A major subdivision of the complex is suggested, however, on account of size and shape of male opercula. In *Baeturia* Stål, 1866, *Gymnotympana* Stål, 1861, *Venustria* Goding & Froggatt, 1904 and *Scottotympana*, the male operculum extends medially beyond meracanthus, whereas the medial margin of operculum, or the greater part of it, lies laterally of the meracanthus in *Aedeastria* De Boer, 1990, *Chlorocysta* Westwood, 1851, *Cystosoma* Westwood, 1842, *Thaumastopsaltria* Kirkaldy, 1900 and several species erroneously placed in *Baeturia* (compare figs. 3 and 4).

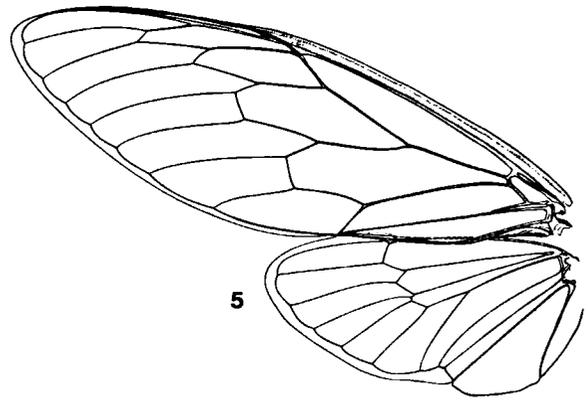


Fig. 5. left tegmen and wing, *Scottotympana huibregtsae*, paratype Bululo.

The species of *Scottotympana* most resemble *Gymnotympana* and *Venustria* in general aspect. The species of these three genera share: (1) tegmina with reddish venation and a broad hyaline border along the hind margin (fig. 5), (2) a colour pattern of dark longitudinal streaks on thorax and dark spots on head, (3) an extremely long proximal spine on fore femur, often longer than the distance between proximal and middle spine (fig. 9), and (4) a very short meracanthus. Furthermore, *Scottotympana* shares with *Gymnotympana* a strongly curved proximal margin of tergite 2, between auditory capsule and sternite 2, arching over tymbal cavity (fig. 3).

Only the long femoral spine might possibly be a synapomorphy for these genera. The phylogenetic value of the other characters is uncertain. Tegmen venation is often ochraceous, though red venation sporadically occurs throughout the genera complex and is common in many other groups of cicadas. The hyaline border along hind margin of tegmen, though variable in width, is generally much narrower in the other genera of the complex. However, both wide and narrow borders are widely distributed outside the complex.

Species of the “*Baeturia* and related genera complex” are usually unicolored ochraceous or greenish, though many *Baeturia* species are covered with dense brown speckling. A colour pattern as described above for *Scottotympana*, is

also found in *Baeturia loriae* Distant and some related species and, although less distinct, in some species of *Chlorocysta*. This pattern is very similar to that found in several other groups of cicadas.

The meracanthus is very short in *Gymnotympana* and *Venustria*, slightly longer in *Scottotympana*, but usually longer and more slender in other groups of the complex. Cicadettini have a similar short meracanthus.

The arched proximal margin of tergite 2 is probably a plesiomorph character, since a very similarly shaped 2nd tergite is widely distributed e.g. in Cicadettini and Prasiini. In other groups of the complex, this margin is straight between the auditory capsule and sternite 2 (compare figs. 3 and 4).

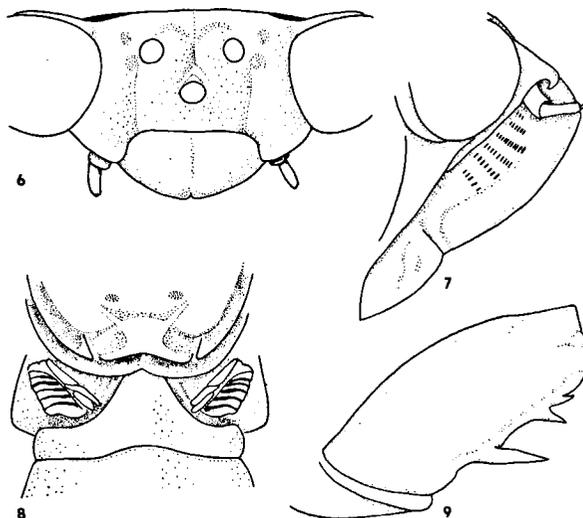
The phylogeny of the species of *Scottotympana* It is most probable that *S. biardae* and *S. huibregtsae* form the sister taxon of *S. sahebdivanii*. Possible synapomorphies for *biardae* and *huibregtsae* are the lateral plates on the claspers and the laminiform lobe at the distal margins of pygofer. Furthermore, these species share lateral rows of very light spots on the abdomen. *S. sahebdivanii* and *S. huibregtsae* share an oval operculum, but this character is found in several related genera e.g. *Venustria* and *Baeturia*.

## TAXONOMY

### *Scottotympana* n. gen.

Type species: *Scottotympana biardae* n. sp.

Description. — Body ochraceous to brown, with pattern of dark spots on head, and dark streaks on thorax. Distal part of abdomen darkened. Head (fig. 6) broad and short, broader than anterior margin of pronotum and about as broad as anterior margin of mesonotum. Distance between eyes longer than length of head. Postclypeus in dorsal view only slightly protruding beyond vertex lobes and smoothly rounded anteriorly. Its anterior



Figs. 6-9. *Scottotympana biardae*, holotype: 6, head in dorsal view; 7, postclypeus in lateral view; 8, first and second abdominal segments in dorsal view; 9, fore femur.

margin convex, continuous with anterior margins of vertex lobes. Postclypeus in lateral view (fig. 7) slightly swollen, anterior margin (lateral view) slightly convex. Vertex broad, 1.4-1.5 × as broad as postclypeus, and smoothly vaulted. Vertex with distinct medial furrow, but without diverging furrows between frontal and lateral ocelli. Ocelli small and wide apart, distance between lateral ocelli distinctly longer than distance between lateral ocellus and eye. Tegmina with eight apical areas, wings with six (fig. 5). Tegmen venation, especially costa, red. Tegmina and wings with broad hyaline border along hind margins. Fore femur with row of three erect spines, diminishing in length towards tibia; proximal spine longer than distance to middle spine (fig. 9). Tympanum with 5-7 parallel sclerotized ridges. Distal part of operculum partly covering tymbal cavity in ventral view and reaching medially beyond meracanthus. Meracanthus very short, reaching to about half the operculum length. Abdomen inflated. Proximal margin of second tergite strongly curved, mesial to auditory capsule, arching over tymbal cavity. Eighth tergite forming a small lobe at distoventral corner (fig. 1 arrow). Pygofer with short and sharply

pointed caudodorsal beak. Ventral margins of pygofer converge in sharp angle to base of pygofer opening and continue as parallel ridges over underside of pygofer (fig. 18). Claspers parallel, not fused at their bases, and thus not forming a ring around anal valves. Apical part of clasper very smoothly rounded, with large and sharp-edged ventral hollow; proximodorsal corner of this apical part serves as support for aedeagus. Aedeagus S-curved, and with broad angular lateral crests.

Distribution. — *Scottotympana* is recorded mainly from northern New Guinea. One specimen of *S. huibregtsae* probably comes from New Britain, one specimen of *S. biardae* comes from central New Guinea (fig. 10).

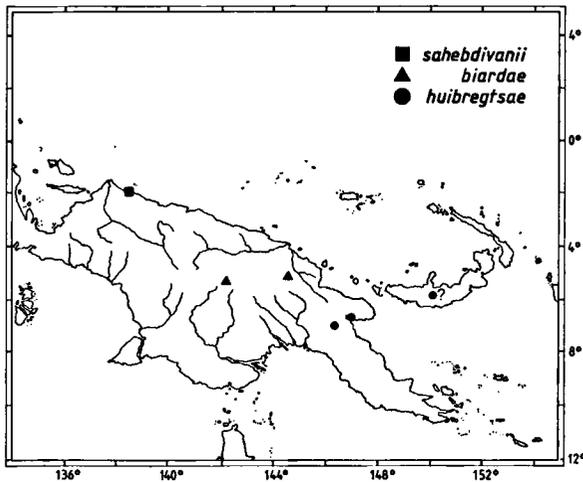


Fig. 10. Localities of *Scottotympana biardae*, *S. huibregtsae* and *S. sahebdivanii*.

New Britain and the northern mountain ranges of New Guinea are fragments of a historic island arc: the Outer Melanesian Arc (see Hamilton, 1979; Holloway, 1979; 1984). Land masses originating from this arc have been recognized as areas of endemism for several groups of cicadas (Duffels, 1986; De Boer, 1989; Duffels & De Boer, 1990). The geographic data of *Scottotympana* suggest, that this genus evolved within the Outer Melanesian Arc.

Etymology. — Early last year, I was asked by the Dutch branch of the World Wildlife Fund to name three new species of cicadas after three of their junior members (Rangers), the winners of a fund raising competition, related to their biodiversity programme. The new species described in this paper are named after Patricia Biard, Lindy Huibregtse and Sahand Sahebdivani, honouring their efforts in raising funds for the WWF.

The genus was named in honour of Sir Peter Scott, founder of the World Wildlife Fund, The suffix *tympana* is applied, to indicate the relationship with *Gymnotympana*.

#### Key to the males

- 1a. Distal pygofer margin strongly convex, forming a semi-circular laminiform protrusion. Lateral lobes of pygofer with conical-shaped, slightly upwards curved, protrusion. Ventral pygofer margin angularly bent, just underneath protrusion of lateral lobe of pygofer. Caudodorsal beak erect. Clasper with distinct lateral plate at base. Body length over 22 mm ..... 2
- b. Distal pygofer margin weakly convex, without laminiform protrusion. Lateral lobe of pygofer strongly bending outwards, forming a rectangular lateral protrusion. Ventral pygofer margin straight to apex of protrusion of lateral lobe of pygofer (fig. 26). Caudodorsal beak strongly bent. Clasper thickened, but without lateral plate at base. Body length under 22 mm .....  
..... *S. sahebdivanii*.
- 2a. Body light brown. Middorsal part of first tergite totally hidden under metanotum (fig. 8). Distal part of operculum angular (fig. 11). Clasper with large, square-shaped, lateral plate at base. Apical part of clasper elongate, finger-shaped, at proximodorsal corner (fig. 15) ..... *S. biardae*.
- b. Body colour, with very light parts contrasting with black-brown parts. Middorsal part of first tergite only partly hidden under metanotum (cf. fig. 25). Distal part of operculum rounded, oval (fig. 19). Clasper with

small, triangular, lateral plate at base. Apical part of clasper slightly elongate, broadly rounded, at proximodorsal corner (fig. 22) ..... *S. huibregtsae*.

#### Description of the species

#### *Scottotypana biardae* n. sp. (figs. 6-18)

Holotype: "New Guinea NE. Eliptamin Valley 1200-1350 m. Aug. 16-30, 1959" (print); "W.W. Brandt Collector BISHOP" (print), ♂, BPBM; Paratype: Lower Jimmi V., 1965, native coll., 1 ♂, BPBM.

*S. biardae* is easily recognized by the large lateral plates on claspers and its large, almost rectangular operculum. There are considerable differences in shape of clasper and aedeagus between the two available specimens, so they possibly represent two separate species.

Description. — Body light brown, with distinct pattern of brown bands on thorax. Abdomen long and slender, 1.2-1.3 × as long as head and thorax. Tegmina 1.1-1.3 × as long as body length.

Head (fig. 6): Ochraceous, slightly darker brown on postclypeus, vertex lobes and between ocelli. Vertex lobe with two, almost round, dark spots between lateral ocellus and eye, and a triangular dark spot at proximomedial edge of eye. Head 2.7-2.8 × as broad as long. Postclypeus 2.5-3.2 × as broad as long. Sides of postclypeus (fig. 7) with 5-6 vague and irregular rows of short parallel ridges. Vertex 1.6-1.8 × as broad as long and 1.1-1.2 × as broad as length of head. Distance between lateral ocelli 2.6-2.7 × width of frontal ocellus, and 1.3-1.5 × distance between lateral ocellus and eye.

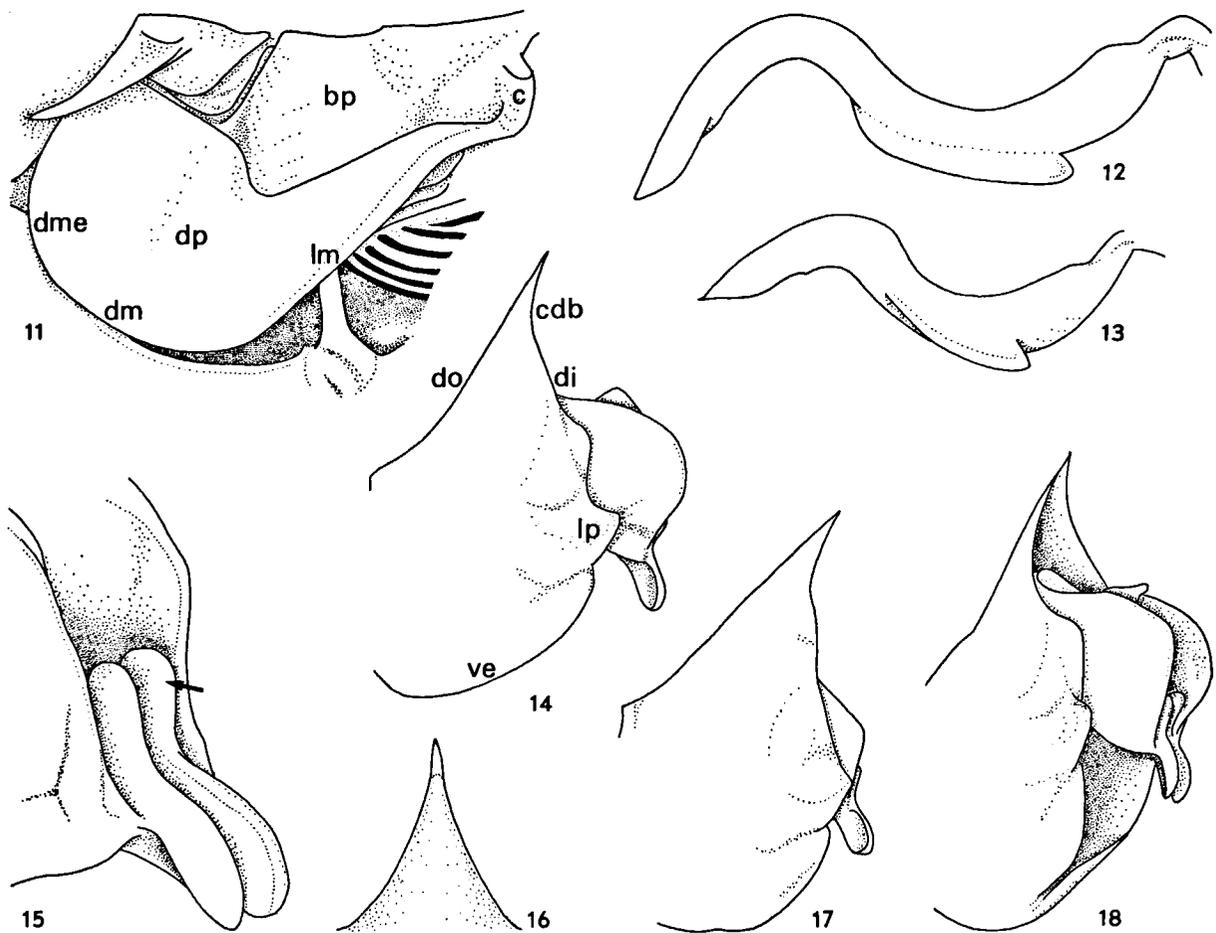
Thorax: Pronotum light brown, with two narrow, dark brown longitudinal streaks, bordering a broad and ochraceous middorsal band. These streaks broaden anteriorly to triangular spots on both sides of middorsal band. A pair of triangle-shaped paramedian spots, at margin of pronotal collar, marks the

end of medial band. In the paratype two pairs of irregular shaped, broad dark bands run in an along medial and lateral fissures; the lateral bands only, reach margin of pronotal collar, and fuse with dark brown streak along lateral part of that margin. In the holotype, these latter markings are faded and hardly visible. Mesonotum light brown with two large paramedian brown spots bordering pronotum, and reticulate pattern of angular brown spots forming lateral bands from pronotum margin, converging to corners of cruciform elevation. Two black spots in front of cruciform elevation.

Tymbal organ: Holotype with 6 dark sclerotized parallel ridges spanning tymbal from dorsal to ventral margin. The most proximal ridge narrows considerably towards ventral margin and only just reaches it. Six short and lighter coloured intercalary ridges seem to form a longitudinal band across tymbal. Paratype has one complete ridge and one intercalary ridge less than holotype.

Operculum (fig. 11): Larger than in both other species, almost completely covering tymbal cavity in ventral view. Basal part of operculum strongly vaulted, especially medially, where the vaulting abruptly bends down to base of meracanthus. Basal part dark brown suffused at distolateral corner and on slope of medial vaulting. Distal part of operculum plate-like, very angular, almost square-shaped and erect. Distal part narrower than in both other species, only just reaching medially beyond meracanthus. Its lateral margin long and straight, rising from close to distolateral corner of basal part. Distal margin shorter and slightly convex, medial margin still shorter and straight. Distal margin making an almost right angle with lateral margin, distomedial corner rounded.

Abdomen: Long and slender, light ochraceous, but slightly darkened in middorsal band, on sides of tergites 6-8 and on sternites 6-7. Segmental hind margins slightly reddish. Sides of abdomen with 2 parallel rows of light patches, and lateroventral row of very slightly darkened spots, on segments 3-7. First tergite (fig. 8) very short, its medial part completely hidden under metanotum. Second tergite very



Figs. 11-18. *Scottotympana biardae*: 11, operculum, holotype; 12, aedeagus, holotype; 13, aedeagus, paratype; 14, pygofer in lateral view, holotype; 15, claspers, detail apical part, holotype; 16, caudodorsal beak in dorsal view, holotype; 17, pygofer in lateral view, paratype; 18, pygofer aslant, paratype. Lettering: bp = basal part of operculum; c = crest around distolateral corner; cdb = caudodorsal beak; di = distal margin of pygofer; dm = distal margin of operculum; dmc = distomedial corner of operculum; do = dorsal margin of pygofer; dp = distal part of operculum; lm = lateral margin of operculum; lp = lateral protuberance; ve = ventral margin of pygofer.

long middorsally and reaching metanotum, its proximal margin strongly convex middorsally.

Genitalia: Pygofer in lateral view (fig. 14, 17): Dorsal margin concave, continuous with straight and erect caudodorsal beak. Distal margin concave from beak, but strongly convex at half its length, forming an inwards curved semi-circular laminiform protrusion in holotype (fig. 18); this protrusion is very sharply bent inwards, and therefore not visible in lateral view, in paratype (fig. 17). Caudodorsal beak in dorsal view (fig. 16) triangular, very

sharply pointed at apex. Lateral lobe of pygofer in holotype with conical, slightly upwards curved and distinctly hindwards projecting protuberance. In the paratype this protuberance much smaller, more angular and less far projecting hindwards. Ventral margin of pygofer convexly bent, forming angular corner under protuberance. Clasper very conspicuous by its large laminose and square-shaped lateral plate (in holotype larger than in paratype). Apical part of clasper forming elongate, finger-shaped, proximodorsal protrusion. This protru-

sion supports aedeagus in upright position. In lateral view (fig. 14, 17) this protrusion lies partly beyond lateral plate, but is not fused with it (fig. 15); lateral plate connected to ventral part of clasper only. Aedeagus very long and broad, strongly S-curved; apical part almost in right angle on medial part. Aedeagus pore very large and oval. Size and shape of aedeagus, however, quite different in the two available specimens. Aedeagus of holotype (fig. 12) distinctly longer than that of paratype (fig. 13), with longer and oblong-shaped lateral crests. These crests triangle-shaped, narrowing more gradually towards aedeagus apex, in paratype.

Measurements: Body length: 23.2-26.2 mm; tegmen length: 30.0-31.0 mm; pronotum length: 3.0-3.3 mm; mesonotum length: 4.9-6.0 mm; head length: 2.1-2.4 mm; head width: 6.0-6.6 mm; width of pronotal collar: 7.7-8.5 mm.

Distribution (fig. 10): Central west Papua New Guinea.

**Scottotympana huibregtsae** n. sp.  
(figs. 5, 10, 19-24)

Holotype: "New Guinea NE Lae, Singuawa R. 147° 10' E 6° 45' S 80 m. 16.iv.1966" (print); "Pri. Forest" (print); "O.R. Wilkes Light Trap BISHOP Mus." (print), ♂, BPBM; Paratypes: PAPUA: NEW GUINEA (NE): Bulolo, 700 m, 26.xii.1969, J. Sedlacek, 1♂, BPBM; Lae, viii.1944, F.E. Skinner, 1♂, BPBM; BISMARCK ARCHIPELAGO: Bismarck Arch. Buololo, xi.1934, J.L. Froggatt, 1♂, BMNH.

*S. huibregtsae* is of about the same size as *S. biardae*, but is darker coloured and has a relatively shorter abdomen. *S. huibregtsae* is easily recognized by its dark brown abdomen with light, almost transparent sides.

Description. — Body brown, with distinct pattern of light and dark bands on thorax. Abdomen short and broad, 1.0-1.2 × as long as head and thorax. Tegmina 1.2-1.4 × as long as body length.

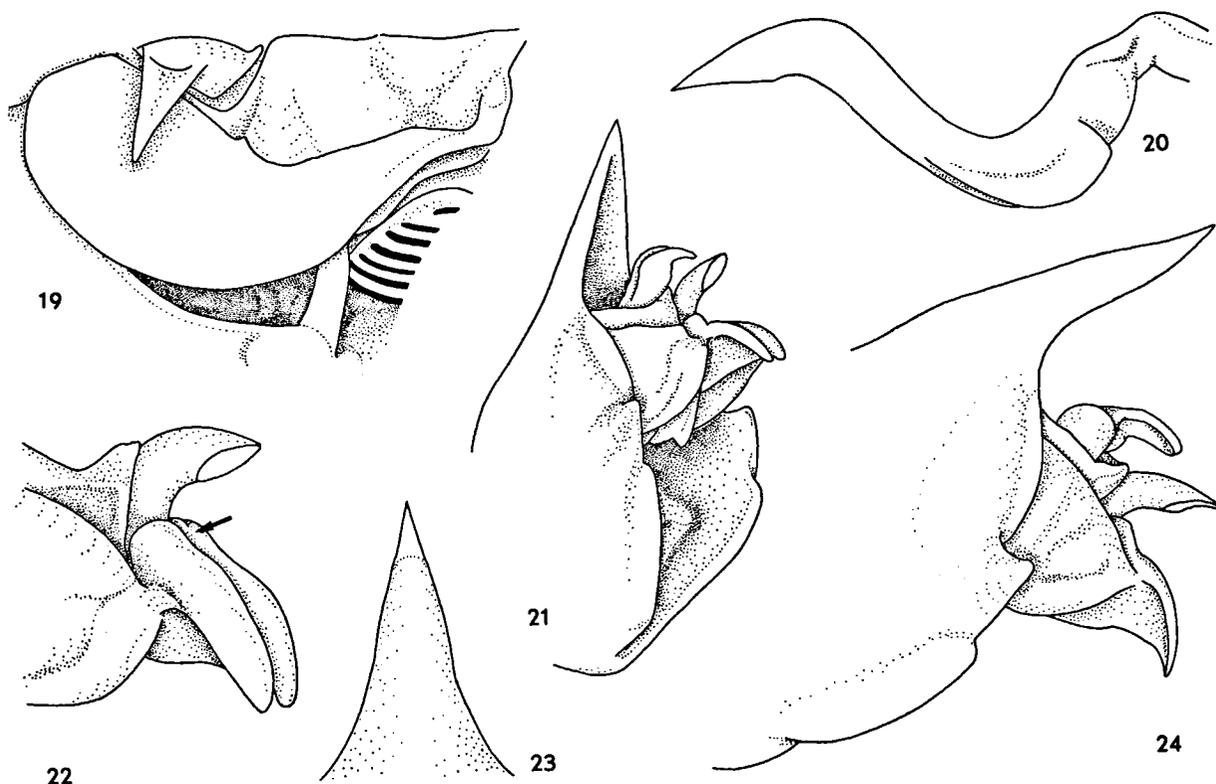
Head: Dark brown, but with large

ochraceous areas between lateral ocelli and eyes. Vertex with two pairs of dark spots within these light areas, and a triangle-shaped dark spot at proximomedial edge of eye. Head broader than in both other species, 3.1-3.4 × as broad as long. Postclypeus 2.3-2.4 × as broad as long. Sides of postclypeus with 5-7 rows of short parallel ridges. Vertex very broad, 2.0-2.2 × as broad as long and 1.4-1.5 × as broad as length of head. Distance between lateral ocelli 3.0-3.3 × width of frontal ocellus, and 1.2-1.3 × distance between lateral ocellus and eye.

Thorax: Colour pattern almost the same as in *biardae*, but more strongly contrasting. Pronotum light brown, with two narrow dark brown longitudinal streaks, bordering a broad and ochraceous middorsal band. These streaks broaden anteriorly to triangular spots on both sides of middorsal band and diverge sharply near pronotal collar. A short dark middorsal streak, along pronotal collar, marks the end of medial band. Two pairs of irregular shaped, broad dark bands run in and along medial and lateral fissures; the lateral pair only, reaching margin of pronotal collar, and fusing with dark brown streak bordering lateral parts of pronotal collar. Mesonotum light brown with two large paramedian brown spots bordering pronotum. A reticulate pattern of angular brown spots forms lateral bands from pronotum, converging to corners of cruciform elevation. A broad light brown streak lies lateral to these bands. Two black spots in front of cruciform elevation.

Tymbal organ: Six dark red-brown, parallel, sclerotized ridges spanning the tymbal from dorsal to ventral margin and a 7th most proximal ridge spanning about 3/4 tymbal width. Six very distinct, light brown, intercalary ridges seem to form a longitudinal band across tymbal.

Operculum (fig. 19): Distinctly shorter than that of the foregoing species and less angular, only partly covering tymbal cavity in ventral view. Basal part of operculum strongly vaulted as in *biardae*, with a similar abruptly downwards curved medial vaulting. Basal part dark brown suffused at distolateral corner and on slope of



Figs. 19-24. *Scottotympana huibregtsae*: 19, operculum, holotype; 20, aedeagus, paratype Bulolo; 21, pygofer aslant, holotype; 22, claspers, detail apical part, holotype; 23, caudodorsal, beak in dorsal view, holotype; 24, pygofer in lateral view, holotype.

medial vaulting. Distal part of operculum rounded, oval and curved towards abdomen. Its lateral margin short and almost straight, rising from close to distolateral corner of basal part and curving gradually into slightly convex distal margin. Medial margin strongly convex.

Abdomen: Shorter and rather stout compared to foregoing species, with more contrast in colouration. Second tergite dark brown laterally, but light ochraceous dorsally. Third, fourth and part of fifth tergite very light, and almost transparent laterally, but dark brown dorsally. Distal half of 5th tergite and whole of 6th and 7th tergite dark brown. Proximal part of 8th tergite very light, distal part dark. Ventral side of abdomen with large oval dark spot covering sternites 5-7. Hind margins of sternites 3-4 slightly darkened. Lateral sides of abdomen with 2 parallel rows of small light

spots on segments 2-8, even distinguishable on lighter parts of abdomen. Middorsal part of first tergite very short and partly hidden under metanotum. Second tergite much shorter than in *biardae* (cf. fig. 25), its proximal margin slightly convex middorsally.

Genitalia: Pygofer in lateral view (fig. 24): Dorsal margin almost straight, angularly bent into straight and erect caudodorsal beak. Distal margin convex between base of caudodorsal beak and lateral protrusion, and forming an inwards curved protrusion, similar to that of *biardae*, though smaller. Caudodorsal beak very long and slender, spine-shaped and sharply pointed at apex (fig. 23). Protrusion on lateral lobe of pygofer small, conical-shaped and curved upwards, bluntly rounded at apex. Ventral margin slightly convex and forming a right-angled corner just underneath this pro-

tubercle. Clasper (fig. 22) very similar to that of *biardae*, but with a smaller lateral plate. Lateral plate more triangle-shaped, its height not exceeding dorsal clasper margin (lateral view). Apical part of clasper broadly rounded at its proximodorsal corner. This slightly protruding corner supports aedeagus in upright position. Aedeagus (fig. 20) long and broad, though smaller than in *biardae*, and strongly S-curved. Lateral crests of aedeagus very broad and triangle-shaped (as in *biardae* paratype). Aedeagus pore large and oval.

Measurements: Body length: 22.0-25.6 mm; tegmen length: 30.1-31.2 mm; pronotum length: 3.1-3.4 mm; mesonotum length: 5.7-5.8 mm; head length 1.9-2.0 mm; head width: 6.6-6.8 mm; width of pronotal collar: 7.6-8.2 mm.

Distribution (fig. 10): Northwestern part of Papuan Peninsula and, probably, New Britain (see remark).

Remark: The locality "Buololo, Bismarck Archipelago" could not be traced. Buololo could be a mis-spelling of Bulolo on New Guinea, which is the more likely, since the species is known from that locality too. However, the label definitely mentioned Bismarck Archipelago, and since Mr. Froggatt was stationed at Rabaul (New Britain), as Government Entomologist (Van Steenis-Kruseman, 1950), the specimen probably comes from that island.

***Scottotympna sahebdivanii* n. sp.**  
(figs. 1, 3, 10, 25-33)

Holotype: "New Guinea Neth. Bodem, Sarmi Area vii-10-1959" (print); "T.C. Maa Collector BISHOP" (print), ♂, BPBM; Paratypes: same data as holotype 2♂, 1♀, BPBM; same data 1♂, Instituut voor Taxonomische Zoölogie, Zoölogisch Museum, Amsterdam.

*S. sahebdivanii* is distinctly smaller than both foregoing species. It can be recognized by its strongly bent caudodorsal beak.

Description. — Body ochraceous, with only

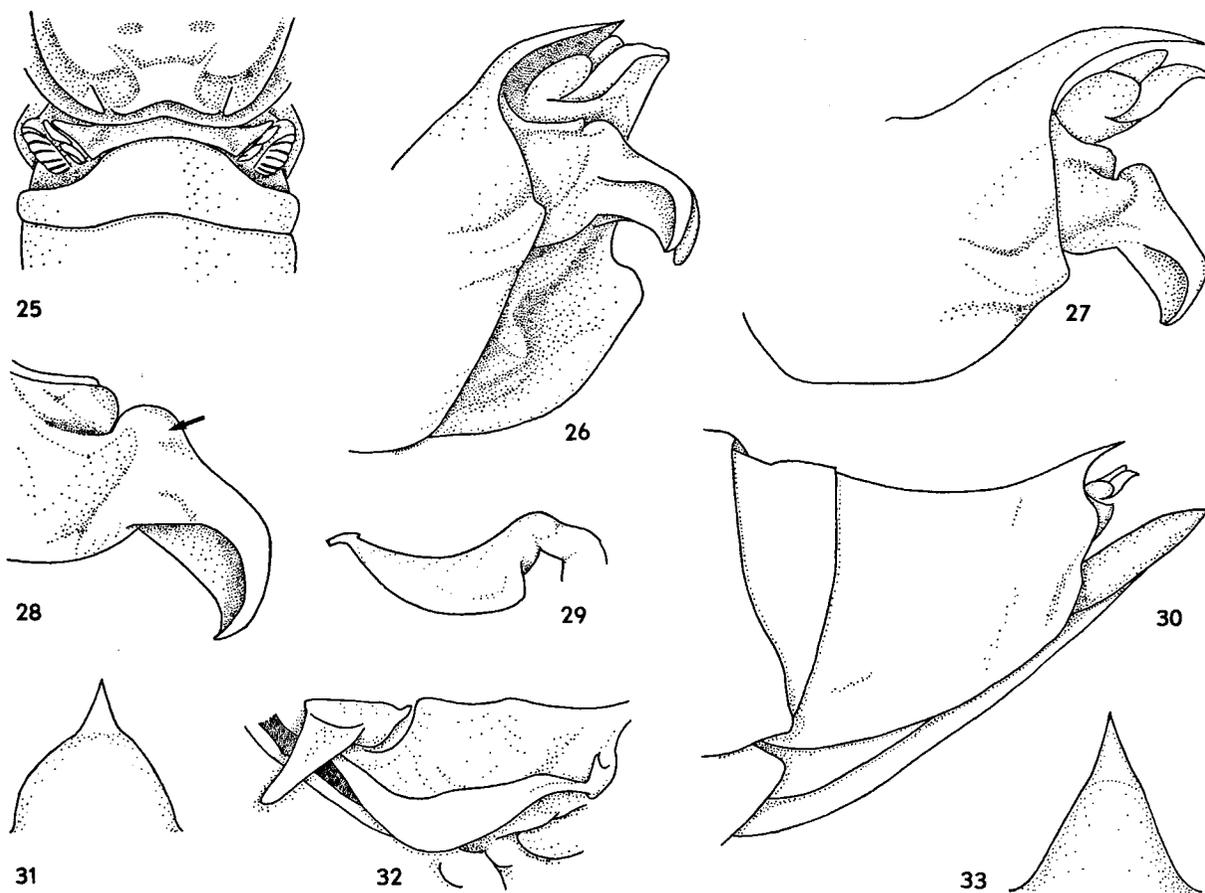
very vague markings on head and thorax. Hind margins of abdominal segments bright red. Abdomen in males 1.3 × as long as head and thorax, in female 1.2 ×. Male tegmen 1.2-1.3 × as long as body length, in female 1.2 ×.

Head: Ochraceous, slightly darker brown on postclypeus. Two specimens with a triangular dark area between ocelli. The two pairs of dark spots between lateral ocelli and eyes, as described for both other species, are fused to single dark streaks. A triangular dark spot at proximomedial edge of eye. Head 2.7-2.9 × as broad as long. Postclypeus 2.8-4.0 × as broad as long. Sides of postclypeus rather smooth, with some indistinct rows of short parallel ridges. Vertex narrower than in *huibregtsae*, 1.8-1.9 × as broad as long and 1.3-1.4 × as broad as length of head. Distance between lateral ocelli 2.9-4.5 × width of frontal ocellus, and 1.2-1.5 × distance between lateral ocellus and eye.

Thorax: With less distinct colour markings than both foregoing species. Pronotum ochraceous, with 2 small paramedian brown spots at margin of pronotal collar, and often slightly darkened along fissures. One male with slightly reddish middorsal band on pronotum and one male with broad castaneous brown middorsal band over anterior half of pronotum only. Mesonotum light brown with two black spots in front of cruciform elevation. Three specimens, as in foregoing species, with two large paramedian brown spots bordering pronotum and a reticulate pattern of angular brown spots forming lateral bands from pronotum, converging to corners of cruciform elevation.

Tymbal organ: Five light brown, parallel, sclerotized ridges spanning tymbal from dorsal to ventral margin, and a 6th and 7th proximal ridge spanning about 4/5 and 2/3 of tymbal width respectively. Intercalary ridges not clearly separated from main ridges.

Opercula: Male operculum (fig. 3) closely resembling that of *huibregtsae*, only partly covering tymbal cavity in ventral view. Basal part of operculum less vaulted than in foregoing species, more gradually curved down mesiad.



Figs. 25-33. *Scottotympana sahebdivanii*: 25, first and second abdominal segments in dorsal view, holotype; 26, pygofer aslant, holotype; 27, pygofer in lateral view, holotype; 28, clasper, paratype; 29, aedeagus, paratype; 30, female genital segment in lateral view; 31, male caudodorsal beak in dorsal view, holotype; 32, female operculum; 33, female caudodorsal beak in dorsal view.

Distal part of male operculum oval and curved towards abdomen, as in *huibregtsae*. Its lateral margin short and straight, rising from close to distolateral corner of basal part and curving gradually into slightly convex distal margin. Medial margin strongly convex. Female operculum (fig. 32) very short. Its distal part shorter than basal part, sickle-shaped and erect.

Abdomen: Male abdomen slender as in *biar-dae*, ochraceous, but segments 6-8 dark brown. Abdomen in one male entirely dark brown. Segmental hind margins bright red. Abdomen not darkened middorsally, lateroventral row of slightly darkened spots hardly visible. First tergite (fig. 25) short and partly hidden under

metanotum. Proximal margin of second tergite slightly convex, almost straight middorsally. Female abdomen as in male, with its caudal half darkened. Female genital segment (fig. 30) long and slender; greatest length longer than greatest width. Ovipositor sheaths reaching well beyond apex of caudodorsal beak. Female caudodorsal beak in dorsal view (fig. 33) stout, triangle-shaped and sharply pointed at apex.

Male genitalia: Pygofer in lateral view (fig. 27): Dorsal margin almost straight, angularly bending into straight and hindwards directed caudodorsal beak. Distal margin slightly convex between base of caudodorsal beak and lateral protrusion, though not forming the

inwards curved protrusion characteristic for both other species (fig. 26). Caudodorsal beak in dorsal view (fig. 31) very broad and swollen at base, abruptly narrowing to a short and sharply pointed apex. Lateral lobe of pygofer abruptly bending outwards, forming rectangular laminiform and slightly upwards directed protuberance. Ventral margin straight to apex of this protuberance and angularly bent at half its length. Clasper (fig. 28) with apical part very similar to that of both foregoing species. Basal part of clasper, though distinctly swollen laterally, missing a lateral plate. Apical part of clasper almost rectangular at proximodorsal corner. This slightly protruding corner supports aedeagus in upright position. Aedeagus (fig. 29) strongly up-curved and sharply bent down near apex, distinctly smaller than in foregoing species. Lateral crests of aedeagus triangle-shaped as in *huibregtsae*, very broad and angular proximally, gradually narrowing towards aedeagus apex and fused to a small sub-apical collar. Aedeagus pore circular.

Measurements: Body length ♂: 19.6-21.7 mm ♀: 23.8 mm; tegmen length ♂: 25.0-26.6 mm ♀: 28.7 mm; pronotum length ♂: 2.6-2.8 mm ♀: 3.2 mm; mesonotum length ♂: 4.3-4.8 mm ♀: 5.7 mm; head length ♂: 1.8-2.0 mm ♀: 2.2 mm; head width ♂: 5.4-5.8 mm ♀: 6.5 mm; width of pronotal collar ♂: 6.0-6.4 mm ♀: 7.5 mm.

Distribution (fig. 10): Bodem, on the Northwest coast of Irian Jaya.

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