

REVISIONS OF *DIOCLERUS*,
HARPEDONA, *MERTILA*,
MYIOCAPSUS, *PRODROMUS*,
AND *THAUMASTOMIRIS*
(HETEROPTERA: MIRIDAE,
BRYOCORINAE: ECCRITOTARSINI)

GARY M. STONEDAHL

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CONTENTS

Abstract	4
Introduction	4
Acknowledgments	5
Museum Abbreviations	5
Materials and Methods	5
Systematics/Tribe Ecritotarsini	6
Genus <i>Dioclerus</i> Distant	7
Key to <i>Dioclerus</i> Species	12
<i>Dioclerus bengalicus</i> , New Species	12
<i>Dioclerus lutheri</i> (Poppius)	12
<i>Dioclerus malayensis</i> , New Species	13
<i>Dioclerus praefectus</i> Distant	13
<i>Dioclerus sabah</i> , New Species	14
<i>Dioclerus thailandensis</i> , New Species	15
Genus <i>Harpedona</i> Distant	16
Key to Males of <i>Harpedona</i> Species	20
<i>Harpedona cuneale</i> (Poppius)	21
<i>Harpedona fulvigenis</i> (Poppius)	23
<i>Harpedona gressitti</i> , New Species	23
<i>Harpedona laensis</i> , New Species	24
<i>Harpedona maai</i> , New Species	24
<i>Harpedona marginata</i> Distant	25
<i>Harpedona plana</i> (Poppius)	27
<i>Harpedona sanguinipes</i> Distant	28
<i>Harpedona tenompokensis</i> , New Species	29
<i>Harpedona unicolor</i> (Poppius), New Combination	30
<i>Harpedona verticolor</i> Carvalho	31
<i>Harpedona wau</i> , New Species	31
Genus <i>Mertila</i> Distant	32
Key to Males of <i>Mertila</i> Species	36
<i>Mertila bhamo</i> , New Species	37
<i>Mertila malayensis</i> Distant	37
<i>Mertila sabah</i> , New Species	38
<i>Mertila sarawak</i> , New Species	40
Genus <i>Myiocapsus</i> Poppius	41
Key to Males of <i>Myiocapsus</i> Species	44
<i>Myiocapsus balasonensis</i> , New Species	45
<i>Myiocapsus bilobatus</i> , New Species	46
<i>Myiocapsus jacobsoni</i> Poppius	47
<i>Myiocapsus maai</i> , New Species	48
<i>Myiocapsus mindanao</i> , New Species	48
<i>Myiocapsus perak</i> , New Species	50
<i>Myiocapsus sabah</i> , New Species	51
<i>Myiocapsus tawau</i> , New Species	52
<i>Myiocapsus tjibodas</i> , New Species	52
Genus <i>Prodromus</i> Distant	53

Key to <i>Prodromus</i> Species	59
<i>Prodromus abuyog</i> , New Species	63
<i>Prodromus alboviridescens</i> (Motschulsky), Nomen Dubium	65
<i>Prodromus apoensis</i> , New Species	66
<i>Prodromus bakeri</i> , New Species	66
<i>Prodromus borneoensis</i> , New Species	67
<i>Prodromus cambodiensis</i> , New Species	68
<i>Prodromus chiangmaiensis</i> , New Species	69
<i>Prodromus clypeatus</i> Distant	70
<i>Prodromus gressitti</i> , New Species	72
<i>Prodromus ibbaicus</i> Linnavuori	73
<i>Prodromus joveri</i> Delattre	74
<i>Prodromus kawandanus</i> Odhiambo	74
<i>Prodromus melanonotus</i> Carvalho	75
<i>Prodromus mindanao</i> , New Species	76
<i>Prodromus nigrus</i> Carvalho	77
<i>Prodromus nimbus</i> Delattre	78
<i>Prodromus novoguineensis</i> , New Species	78
<i>Prodromus oculatus</i> (Poppius), New Combination	79
<i>Prodromus pelagus</i> , New Species	81
<i>Prodromus philippinensis</i> (Poppius), New Combination	82
<i>Prodromus ranau</i> , New Species	83
<i>Prodromus sabah</i> , New Species	83
<i>Prodromus subflavus</i> Distant	84
<i>Prodromus subviridis</i> Distant	85
<i>Prodromus tafoensis</i> , New Species	86
<i>Prodromus thaliae</i> China	87
Species Removed from <i>Prodromus</i>	89
Genus <i>Thaumastomiris</i> Kirkaldy	89
Key to <i>Thaumastomiris</i> Species	91
<i>Thaumastomiris cotabato</i> , New Species	92
<i>Thaumastomiris discoidalis</i> Poppius	93
<i>Thaumastomiris minutus</i> Poppius	94
<i>Thaumastomiris philippinensis</i> Hsiao	95
<i>Thaumastomiris piceatus</i> Distant	96
<i>Thaumastomiris sanguinalis</i> Kirkaldy	96
References Cited	97

ABSTRACT

The following six genera of Old World Ecritotarsini (Bryocorinae) are revised, including taxa distributed from tropical west Africa to India, southeast Asia, and east to New Guinea and the Solomon Islands in the tropical western Pacific: *Dioclerus* Distant, *Harpedona* Distant, *Mertila* Distant, *Myiocapsus* Poppius, *Prodromus* Distant, *Thaumastomiris* Kirkaldy. Fifty-nine species are treated in detail, 34 of which are described as new. The genus *Maurocoris* Poppius is synonymized with *Harpedona* Distant and *Prodromopsis* Poppius is renewed as a synonym of *Prodromus* Distant. The following species are synonymized (senior synonym listed last): *Mertila brevicornis* Poppius = *Mertila malayensis* Distant; *Prodromopsis basalis* Poppius, *Prodromopsis cuneatus* (Distant), *Prodromopsis scutellaris* Poppius, *Prodromus cochinchinensis* Odhiambo = *Prodromus clypeatus* Distant; *Prodromus pedunculatus* Odhiambo = *Prodromus oculatus* (Poppius); *Prodromus flavonotus* Odhiambo = *Prodromus thaliae* China.

The following new combinations are created: *Maurocoris unicolor* Poppius = *Harpedona unicolor*; *Prodromus aethiopicus* Poppius = *Duducoris aethiopicus*. *Prodromus albobiridescens* (Motschulsky) is assigned the status of nomen dubium. *Harpedona fulvigenis* (Poppius), *Prodromus joveri* Delattre, and *Prodromus nimbus* Delattre were not examined in conjunction with the present study.

A dorsal habitus illustration is provided for each genus. Scanning electron micrographs of the meta-thoracic scent efferent system, pretarsus, and other structures are presented for most genera. Line drawings of the male genitalia and distribution maps are given for all species. A cladistic analysis of species is performed for each genus and keys for the identification of species are provided. A revised diagnosis and description of each genus are included, and descriptions or redescrptions given for all species.

INTRODUCTION

The Indo-Pacific region as treated by Schuh and Stonedahl (1986) incorporates areas from tropical Africa, southeast Asia, the western tropical Pacific, Sri Lanka, and India. Studies of the mirid fauna in this region are limited, with the only comprehensive treatments being those of Distant (1904b, 1910b) for India, Ceylon, and Burma, and Carvalho (1956), which treats the fauna of Micronesia. The only extensive study of ecritotarsine Miridae in this region dealing exclusively with the bryocorine fauna of Papua New Guinea, is by Carvalho (1981a). Papers of lesser scope that include treatments of ecritotarsine Miridae in southeast Asia and the tropical Pacific have been published by Poppius (1911, 1912a, 1914, 1915a, 1915b). The only significant studies of Ecritotarsini in Ethiopian Africa are by Poppius (1910, 1912b), Odhiambo (1962), and Linnavuori (1975).

The present paper is designed to aid in the identification of species in six little-known genera of Ecritotarsini: *Dioclerus* Distant, *Harpedona* Distant, *Mertila* Distant, *Myiocapsus* Poppius, *Prodromus* Distant, and *Thaumastomiris* Kirkaldy. With the exception of *Harpedona* and *Mertila*, these six genera do not appear to be closely related. They

are treated together here to make the species names, cladistic results, and distributional information available for a concurrent study of Indo-Pacific biogeography (Schuh and Stonedahl, 1986). Fifty-nine species, 34 of which are new, are treated in detail. Four additional species, *Harpedona fulvigenis* (Poppius), *Prodromus albobiridescens* (Motschulsky), *P. joveri* Delattre, and *P. nimbus* Delattre, were not seen in conjunction with this study. The genera and species appear in alphabetical order in the text. Each generic description is accompanied by at least one dorsal habitus illustration and a map or maps showing the distributions of the included species. Illustrations of morphological details are placed near each species description to aid in interpreting the descriptive text. A cladistic analysis of species was performed for each of the six genera. Character descriptions and distributions are presented in table form and placed along with the resulting cladogram near the cladistic analysis section of each generic treatment. The monophyly of each genus is established by the characters given in the generic diagnosis (see also character discussions in Cladistic Analysis and Discussion sections).

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For assistance with illustration I thank Ms. Kathleen Schmidt, Hillsdale, New York, who prepared the fine habitus illustrations of *Dioclerus thailandensis*, *Mertila sarawak*, and *Myiocapsus perak*. Dr. José C. M. Carvalho, Museu Nacional de Historia Natural, Rio de Janeiro, granted permission to use several habitus illustrations from his paper on the Bryocorinae of Papua New Guinea (Carvalho, 1981a). Lauren Duffy, formerly with the Interdepartmental Laboratory, American Museum of Natural History, assisted with the preparation of the scanning electron micrographs.

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MUSEUM ABBREVIATIONS

AMNH American Museum of Natural History, New York

BCIE British Commonwealth Institute of Entomology, London
 BISH Bernice P. Bishop Museum, Honolulu
 BMNH British Museum (Natural History), London
 CAS California Academy of Sciences, San Francisco
 HNHM Hungarian Natural History Museum, Budapest
 LIN Linnavuori Personal Collection, Somersoja, Finland
 USNM National Museum of Natural History, Smithsonian Institution, Washington, D.C.
 UZMH University Zoological Museum, Helsinki

MATERIALS AND METHODS

All major institutions expected to have representatives of Indo-Pacific Eccritotarsini were contacted. Of these the Bishop Museum had the most extensive collections, their specimens representing approximately 70 percent of material examined. The British Museum (Natural History), London; Hungarian Natural History Museum, Budapest; and the University Zoological Museum, Helsinki had important historical collections of Poppius and Distant type material.

Dissections of male genitalia were performed using the technique described in Kelton (1959). Old World Eccritotarsini, with the exception of *Dioclerus* Distant and its relatives, *Jessopocoris* Carvalho, and *Rhodocoris* Schmitz, have an entirely membranous phallosome arising from the phallobase and enclosing the vesica to near its apex. Except for several illustrations in the genus *Mertila*, the phallosome is not shown in the genitalic illustrations accompanying this paper. The eccritotarsine vesica is composed of a vesical sclerite (except membranous lobate sac with spinous patches for *Dioclerus*, *Jessopocoris*, and *Rhodocoris*) with a reduced membranous region apically, which may or may not be divided into distinct lobes, sometimes possessing spines and/or enclosed sclerites. The apical membranous portion of the vesica is omitted from some illustrations of *Myiocapsus* and *Prodromus* for ease of interpretation. The phallobase, which shows little infrageneric variation, is also omitted from many genitalic illustrations. When viewing the illustrations of the highly modified genital cap-

sules of *Harpedona* and *Mertila* (see generic descriptions of genitalia) it is important not to confuse the dorsal processes of the capsule with the parameres and vesica, which are greatly reduced and situated at the ventral angle of the genital aperture.

All cladistic analyses, except the *Prodromus* analysis, were performed without computer assistance using a character addition tree building technique. The *Prodromus* data matrix was processed by the PAUP maximum parsimony computer program (version 2.4 for microcomputers). Character polarity was determined by outgroup comparison. In the majority of analyses a single genus was employed as the outgroup. The *Mertila* analysis utilized taxa from several closely related genera for outgroup comparison. Based on my preliminary investigation of generic relationships, each outgroup is supported as either the immediate sister genus of the ingroup, or as one of several genera belonging to a larger monophyletic group which includes the ingroup (see supporting character information in Discussion and Cladistic Analysis sections). Because the generic relationships of the Eccritotarsini are incompletely known and the present investigation was limited in scope, the search for outgroups and character polarity was not extended beyond the monophyletic groups recognized in the present study. Thus, the condition of each character as found in the outgroup was arbitrarily assigned the plesiomorphic state (0) and the ingroup taxa with alternative con-

ditions were coded as apomorphic (states 1 and 2). The outgroups and character polarities established here will be further scrutinized in a cladistic generic classification of the Old World Eccritotarsini (Stonedahl, in prep.).

Type specimens were examined for all but a few nominal species of Indo-Pacific Eccritotarsini. Lectotypes were designated for a number of Poppius and Distant species in cases where the original descriptions did not contain type designations and when there was no indication that the descriptions were based on unique specimens. The holotype assignments of Odhiambo (1962) for several species of *Prodromus* described by Distant are not valid and the specimens do not bear his labels identifying them as types. I have thus designated a lectotype for each of these taxa: *clypeatus*, *cuneatus*, *subflavus*, *subviridis*. All lectotypes designated in this paper are identified by my handwritten, rectangular, red labels.

Illustrations were prepared using a Wild M5 stereoscopic microscope and a Wild TYP 181300 camera lucida. Genitalic structures were illustrated at magnifications ranging from 37.5 to 156 \times ; various views of the head at 62.5 \times ; and the hemelytra at 31 \times . Measurements were made with an ocular micrometer and are given in millimeters. The depositories of types and other specimens are given as abbreviations in parentheses following the label data.

SYSTEMATICS

TRIBE ECCRITOTARSINI

Eccritotarsaria Berg, 1884: 84 (division, attributed to Reuter, in litt.). Reuter, 1910: 121–124 (synonym of Bryocorina, notes on synonymy of other family-group taxa).

Eccritotarsini Van Duzee, 1917: 362–363 (in part). Bryocorini Carvalho, 1952: 54–59 (in part) (see Carvalho, 1957, pp. 89–90, for complete listing of family-group names in the subfamily Bryocorinae).

Eccritotarsini Schuh, 1976: 24 [reinstated tribal taxon, includes all of the Bryocorini of Carvalho, 1957 (except *Bryocoris* Fallén and its relatives) and the genera *Bunsua* Carvalho, *Palau-coris* Carvalho, *Rhodocoris* Schmitz].

DIAGNOSIS: Within the subfamily Bryocorinae, which is recognized by the distally dilated tarsi with elongate guard setae and hemelytron usually with single-celled membrane, the Eccritotarsini are distinguished by the following synapomorphies: (1) area of insertion of metafemoral trichobothria 2, 3, and 4 distinctly swollen (Schuh, 1976); (2) pulvilli connate to inner surface of pretarsal claws (Schuh, 1976); (3) posteroventral margin of pulvillus with comblike row of long trichia (Schuh, 1976); (4) asymmetrical parampodia; (5) reduced metathoracic scent efferent system, usually with narrow tongue-

shaped peritremal disc and weak osteolar canal; (6) male genitalia with strongly developed vesical sclerite bearing small membranous region distally.

DISCUSSION: The family-group name *Eccritotarsini* was first used by Berg (1884), who designated *Eccritotarsus* Stål as the type genus of the nominal taxon *Eccritotarsaria*. Berg attributed the name to Reuter (in litt.), but *Eccritotarsaria* does not appear in Reuter's writings until 1910. No other genera were included in this group by Berg. Reuter (1910) synonymized the *Eccritotarsaria* and a number of other family-group taxa, some in part, with the *Bryocorina*, leaving the subfamily with no subordinate family-group taxa. Van Duzee (1917) recognized the tribes *Pycnoderini* Reuter, *Bryocorini* Baerensprung, and *Eccritotarsini* Berg within the *Bryocorinae*, placing *Dacota* Uhler (now in the *Phylinae*), *Sysinas* Distant, *Caulotops* Bergroth, and *Hesperolabops* Kirkaldy in the *Eccritotarsini*. Carvalho (1952, 1957) did not recognize any of the tribes and divisions of previous workers except *Monaloniini* Reuter, *Odoniellini* Reuter, and *Bryocorini*. The *Bryocorini* of Carvalho (1952, 1957) included the *Pycnoderini* and *Eccritotarsini* of Van Duzee (1917), as well as all taxa placed in the various subdivisions listed in Carvalho (1957: 90).

Schuh (1976) reinstated the *Eccritotarsini*, basing his decision on the first three synapomorphies listed in the preceding diagnosis. I concur with Schuh that the *Eccritotarsini* includes all of the *Bryocorini* of Carvalho (1957) except *Bryocoris* Fallén and its relatives such as *Hekista* Kirkaldy and *Monalocoris* Dahlbom. Schuh (1976) also placed *Bunsua* Carvalho, *Palaucoris* Carvalho, and *Rhodocoris* Schmitz in the *Eccritotarsini*.

DIOCLERUS DISTANT

Dioclerus Distant, 1910a: 12 (n. gen.); 1910b: 278–279, fig. 151 (descr.). Reuter, 1910: 162 (as *Dioderus* Distant).
Serrofurius Poppius, 1912a: 23–24 (n. gen.) (syn. by Carvalho, 1952: 55).

DIAGNOSIS: Recognized by the short, broad head (in dorsal view) with strong posterior carina; broad, recessed pronotal collar; distinctly punctate clavus and corium; broad flattened embolium with serrate anterior

margin; hemelytral membrane with two distinct cells; pretarsal pulvillus without comb-like row of trichia on posteroventral margin; and by the structure of the metathoracic scent efferent system and male genitalia.

REDESCRIPTION: MALE. Length 3.80–4.35; width across humeral angles of pronotum 1.18–1.28; brownish yellow or golden brown general coloration, sometimes with dark brown markings or rarely more extensively darkened; pronotal disk and hemelytra, except embolium, distinctly punctate; dorsal vestiture with pale, suberect, simple setae. **HEAD.** Broad and short in dorsal view with strong posterior carina, posterior margin including eyes weakly convex; vertex slightly depressed anteriorly of carina; frons moderately convex, only slightly produced anteriorly of antennal fossae; tylus evenly produced, meeting frons along broad depression; eyes prominent, projecting laterally beyond anterior angles of pronotum, occupying $\frac{1}{2}$ – $\frac{2}{3}$ of head height in lateral view; antennae inserted near middle of eye, fossae narrowly removed from anterior margin of eyes; antennae cylindrical; segment I slightly thicker basally, pale yellow to yellowish brown, sometimes with darker brown markings; segments II–IV brown or dark brown; length of antennal segment I $\frac{2}{3}$ – $\frac{3}{4}$ of head width, segment II about twice as long as I, segments II and IV similar to I in length, III usually slightly less than I; all segments with short, reclining, simple setae; juga and lora weakly convex; genae broad; buccal cavity very small, subspherical; gula well developed; labium reaching slightly beyond procoxae to between metacoxae. **PRONOTUM.** Pronotal disk about 1.5 times as broad as long, posterior lobe weakly convex, lateral margins sinuate, posterior margin weakly concave medially, angles broadly rounded; anterior margin of disk with broad, weakly rounded collar, slightly recessed below level of anterior margin of head, width of collar 1.5–2 times greatest diameter of antennal segment I; calli prominent, occupying nearly all of anterior lobe of pronotum, rising abruptly from pronotal collar, separately medially by broad, shallow depression; mesoscutum concealed or narrowly exposed; scutellum weakly elevated, transversely flattened anteromedially; metathoracic scent efferent system atypical for *Eccritotarsini* with broad,

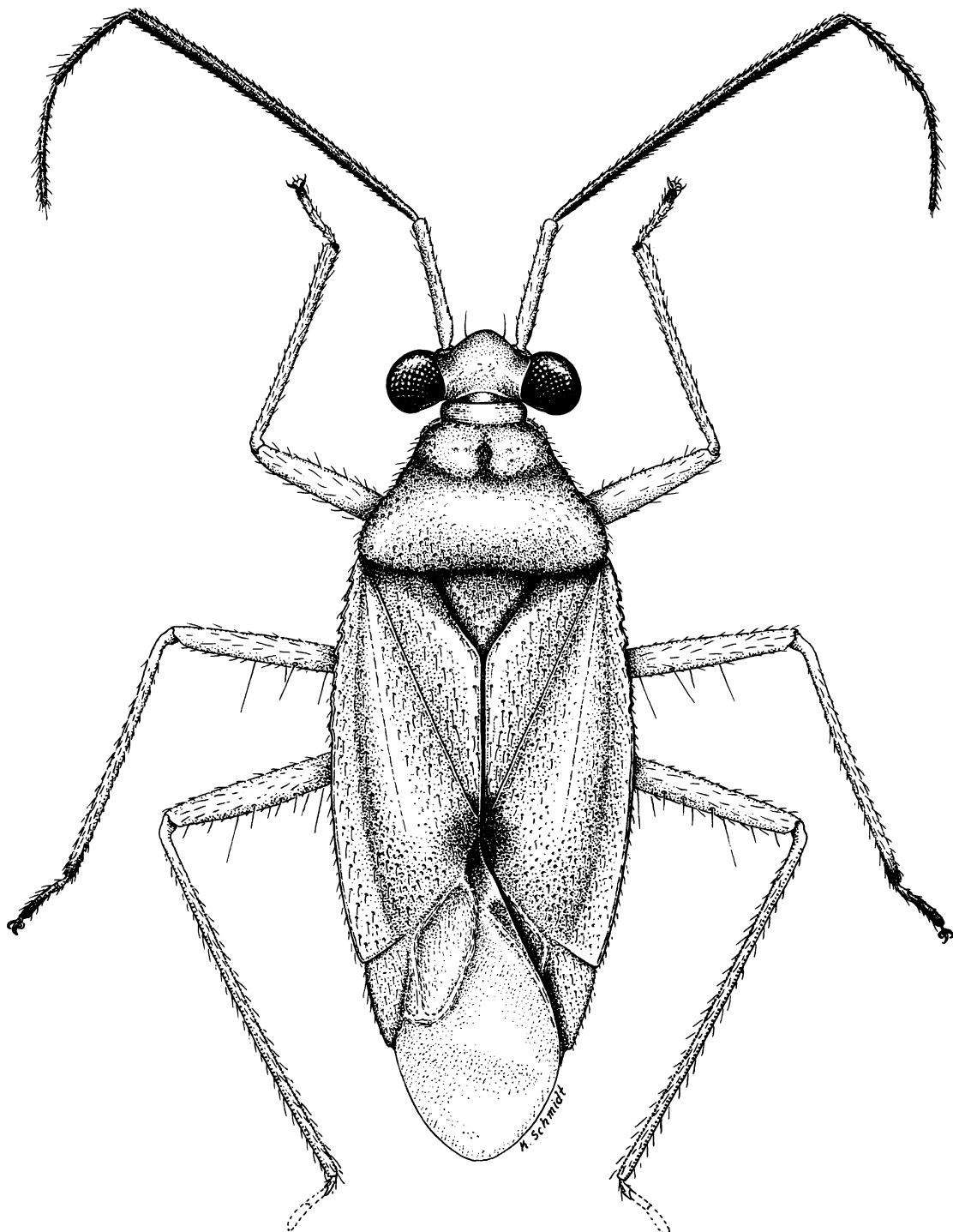


Fig. 1. *Dioclerus thailandensis*, holotype male.

deep osteolar canal; short, bulbous peritremal disk; and well-developed evaporative

area (see fig. 2 of related genus *Bunsua* Carvalho). HEMELYTRA. Moderately rounded lat-

erally with broad, flattened embolium; anterior third of costal margin with 7–9 strong serrations; cuneus much shorter than length of antennal segment I, cuneal incisure shallow, fracture strongly angled anteromedially; membrane pale or slightly infuscated, with two distinct cells, primary cell somewhat rectangular, narrowed distally with broadly rounded apex, secondary cell small, subtriangular. LEGS. Pale yellow or brownish yellow, apices of tibiae and tarsi sometimes slightly darker; femora elongate, slightly flattened, front pair more robust basally; tibiae cylindrical, tibial spines pale, rows of smaller spinules brown or dark brown; tarsi slightly dilated distally, segment III about twice as long as segments I and II; pretarsus as in figure 3 of *Bunsua bryocoroides* Carvalho; pulvillus without comblike row of trichia on posteroventral margin. GENITALIA. Genital capsule about as broad as long or slightly broader than long; gradually narrowed distally with broadly rounded apex; genital aperture ovate or subquadrate, primarily dorsal in orientation or only narrowly visible in posterior view, margins of aperture unmodified except anterior margin sometimes with broad, dorsoventrally flattened process. Paramere sockets on same level in posterior view, dorsal margins of sockets slightly produced medially. Left paramere somewhat C-shaped, shaft sometimes slightly longer than arm; sensory lobe small, weakly or moderately elevated; basoventral margin of arm with broadly rounded, expanded region; shaft strongly flattened distally, apex pointed or rarely recurved and hooklike. Right paramere simple, elongate, flattened distally or rarely excavated ventrally before apex, apex pointed or broadly rounded. Vesica mostly membranous, with sclerotized ringlike structure and one or two variously shaped, small sclerites basally; surface of vesical membrane with numerous strong spinelike tubercles; ductus seminis weakly sclerotized in part; phallobase large, dorsoventrally flattened, strongly produced posteriorly; phallosome distinctly sclerotized, broad basally with ovate aperture, laterally compressed distally with elongate, narrow opening dorsally and apically, ventral surface sometimes narrowly open at apex. FEMALE. Length 3.70–4.45. Similar to male in color, structure, and vestiture.

TYPE SPECIES: *Dioclerus praefectus* Distant. Type of junior synonym: *Serrofurius lutheri* Poppius.

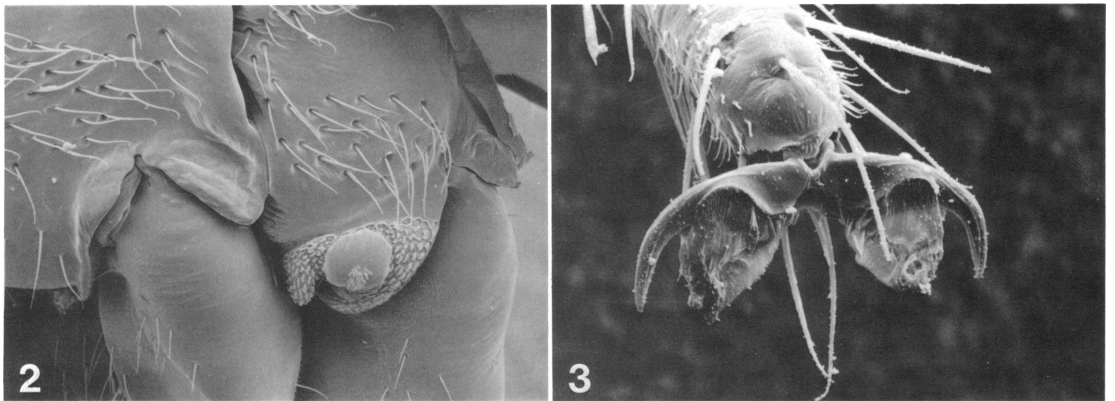
DISTRIBUTION: Sri Lanka, northern India, Indochina, and Malaysia (fig. 4).

DISCUSSION: *Dioclerus* belongs to a monophyletic group of five genera that are distinguished from other Old World Eccritotarsini by the strong carina on the posterior margin of the head; greatly inflated, medially confluent calli; broad, explanate embolium; hemelytral membrane with two well-developed cells; plesiomorphic, mirinelike metaepisternal scent efferent system (see previous description and fig. 2); pretarsal pulvilli without comblike row of trichia on posteroventral margin; and by the structure of the male genitalia, especially the large flattened phallobase, laterally compressed sclerotized phallosome, and vesica with extensive membranous regions. Although the metaepisternal scent efferent system and male genitalia are atypical of the Eccritotarsini, *Dioclerus* and its relatives—*Bunsua* Carvalho (tropical Africa), *Bryocorellisca* Carvalho, *Carinimiris* Carvalho, *Crassiembolius* Carvalho (all New Guinea)—are easily recognized as members of this tribe by the large, fleshy pulvillus which is adnate to the inner surface of the claw, and metafemora with area of insertion of trichobothria 2–4 distinctly swollen. An undescribed species belonging to what appears to be a new genus also was examined from Negros Is., Philippine Islands.

Dioclerus is distinguished from other genera of this monophyletic group by the serrate anterolateral margin of the hemelytra; second antennal segment longer than width of head across eyes; calli weakly differentiated medially and posteriorly; vesica with reduced basal sclerite(s); and vesical membrane with large, broadly distributed spines.

The host plant associations of *Dioclerus* species are unknown. Several species of the related genus *Bunsua* have been collected on *Chlorophora* and *Ficus* (Moraceae).

CLADISTIC ANALYSIS: Eight characters of the external morphology and male genitalia were employed to describe the relationships between the six *Dioclerus* species. These characters are described in table 1 and their distribution among the taxa given in table 2. Genitalic characters 6, 7, and 8 could not be



Figs. 2, 3. *Bunsua bryocoroides* Carvalho. 2. Metathoracic scent efferent system. 3. Pretarsus.

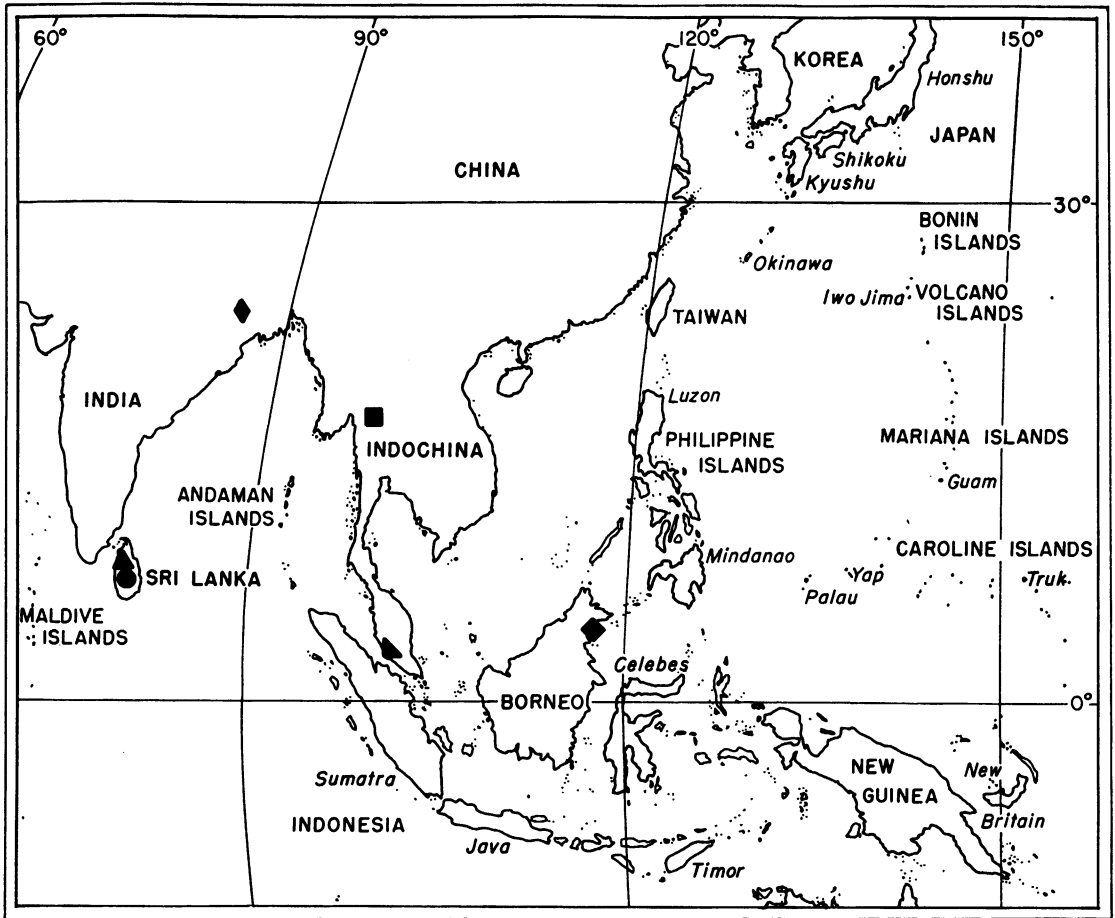


Fig. 4. Distribution of *Dioclerus* species: ◆, *bengalicus*; ▲, *lutheri*; ▴, *malayensis*; ●, *praefectus*; ◆, *sabah*; ■, *thailandensis*.

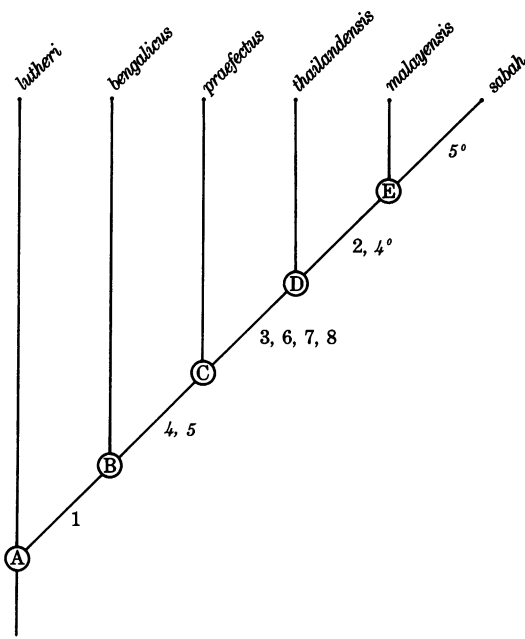


Fig. 5. Cladogram of *Dioclerus* species. Numbers are characters; homoplasious characters given in *italics* (parallelism) and *italics* with superscript zero (reversal); letters identify components discussed in text.

determined for *bengalicus*, *praefectus*, and *sabah* as males were not available for these taxa. For this reason, the results of the analysis are tentative but represent the best estimate of the phylogeny of *Dioclerus* species based on the available data. The closely related genus *Bunsua* was selected as the out-group to establish character polarity. This selection was based primarily on the availability of male specimens of *Bunsua*, which allowed for polarization of the genitalic characters used in the analysis. With the exception of a single species of *Bryocorellisca*, males were not available for the other genera of the *Dioclerus* complex.

The results of the hand-calculated cladistic analysis revealed two minimal length trees of 10 steps differing only in the distribution of character 4. The two trees have the same topology, one with character 4 defining component C and reversed at component E, and the other with character 4 defining *praefectus* and *thailandensis*. The former example is illustrated in figure 5.

TABLE 1

Description of *Dioclerus* Characters^a

Coloration	
1.	0(1)—pronotum and scutellum dark brown. 1(1)—pronotum and scutellum yellow or brownish yellow.
2.	0(1)—corium with large, dark spot bordering apex of clavus. 1(1)—corium uniformly pale, without dark spot near apex of clavus.
Head	
3.	0(1)—posterior margin nearly straight. 1(1)—posterior margin distinctly concave.
4.	0(2)—length of antennal segment II subequal to posterior width of pronotum. 1(1)—length of antennal segment II much greater than posterior width of pronotum.
5.	0(2)—labium reaching slightly beyond apices of procoxae or to middle of mesosternum. 1(1)—labium reaching between mesocoxae.
Right paramere	
6.	0(1)—right paramere short, much smaller than left paramere. 1(1)—right paramere elongate, similar in size to left paramere.
Vesica	
7.	0(1)—basal sclerites well developed. 1(1)—basal sclerites reduced, nearly obsolete.
8.	0(1)—membranous sac with small surface spines. 1(1)—membranous sac with large surface spines.

^a Numbers followed by a period are coded characters at top of table 2; numbers in second column are character states (0 = plesiomorphic state, 1 = apomorphic state; see body of table 2); numbers in parentheses indicate the number of origins of the character state on the cladogram.

TABLE 2

Character Matrix for *Dioclerus* Species

	1	2	3	4	5	6	7	8
<i>bengalicus</i>	1	0	0	0	0	?	?	?
<i>lutheri</i>	0	0	0	?	0	0	0	0
<i>malayensis</i>	1	1	1	0	1	1	1	1
<i>praefectus</i>	1	0	0	1	1	?	?	?
<i>sabah</i>	1	1	1	0	0	?	?	?
<i>thailandensis</i>	1	0	1	1	1	1	1	1

?—missing character information.

KEY TO *DIOCLERUS* SPECIES

1. Posterior lobe of pronotal disk dark brown; Sri Lanka *lutheri* Poppius
Posterior lobe of pronotal disk pale yellowish brown or golden brown 2
2. Inner angle of corium bordering apex of clavus infuscated 3
Inner angle of corium pale 5
3. Length of antennal segment II much greater than posterior width of pronotum 4
Length of antennal segment II about equal to posterior width of pronotum; India
..... *bengalicus*, new species
4. Antennal segment I with longitudinal, fuscous stripe ventrally; length of antennal segment I distinctly less than width of head across eyes; Thailand
..... *thailandensis*, new species
Antennal segment I uniformly yellowish brown, without fuscous stripe ventrally; length of antennal segment I greater than width of head across eyes; Sri Lanka
..... *praeffectus* Distant
5. Ninth abdominal sternite with large fuscous spot laterally; labium reaching slightly beyond apices of procoxae; body length 3.98; North Borneo *sabah*, new species
Ninth abdominal sternite without fuscous spot; labium reaching between mesocoxae; body length 4.35–4.45; Malaya
..... *malayensis*, new species

Dioclerus bengalicus, new species

Figure 4

DIAGNOSIS: Recognized by the uniformly golden brown pronotal disk; corium with dark brown patch bordering apex of clavus; length of antennal segment II subequal to posterior width of pronotum; and ninth abdominal sternite with fuscous spot laterally.

DESCRIPTION: FEMALE. Length 3.70–3.88; golden brown general coloration with dark markings as noted in diagnosis. **HEAD.** Width across eyes 0.88, width of vertex 0.40–0.41; eye occupying about two-thirds of head height in lateral view; labium reaching middle of mesosternum or slightly beyond, length 0.90–0.91; antennal segment I yellowish brown, length 0.59–0.60; antennal segments II–IV dark brown, length of segment II 1.22. **PRONOTUM.** Posterior width 1.17–1.22. **HEMELYTRA.** Cuneus slightly shorter than length of antennal segment I; membrane lightly tinged with brownish yellow, veins

golden yellow. **LEGS.** Brownish yellow, last tarsal segment and pretarsal claws brown or yellowish brown. **GENITALIA.** Ninth abdominal segment with large fuscous spot laterally; internal genitalic structures not examined. **MALE.** Unknown.

ETYMOLOGY: Named for its occurrence in the state of West Bengal, India.

DISTRIBUTION: Northeastern India (fig. 4).

HOLOTYPE ♀: INDIA: **West Bengal:** Birbhum District, Santiniketan, Oct. 18, 1937, T. C. Maa (BISH).

PARATYPE: 1♀, same data as holotype (AMNH).

DISCUSSION: Although the description of *bengalicus* is based on only two females, the color characters given in the diagnosis in combination with the proportional length of antennal segment II will readily distinguish this taxon from all other species of *Dioclerus*. The primary reason for describing it here is to make the name and distributional data available for a concurrent study of Indo-Pacific biogeography (Schuh and Stonedahl, 1986).

Dioclerus lutheri (Poppius)

Figures 4, 6

Serrofurius lutheri Poppius, 1912a: 25 (n. sp.).

Dioclerus lutheri Carvalho, 1952: 55 (n. comb.).

DIAGNOSIS: Recognized by the dark brown posterior lobe of pronotal disk, scutellum, and clavus; corium broadly infuscated basally and across middle; and structure of male genitalia, especially the short right paramere with narrowly flattened, pointed apex (fig. 6c).

REDESCRIPTION: MALE. Length 3.80; general coloration pale brownish yellow with dark markings as described in diagnosis. **HEAD.** Width across eyes 0.90, width of vertex 0.42; eye occupying two-thirds of head height in lateral view; labium reaching slightly beyond apices of procoxae, length 0.81; length of antennal segment I 0.65, yellowish brown; segment II broken medially, dark brown basally. **PRONOTUM.** Posterior width 1.28. **HEMELYTRA.** Cuneus only slightly shorter than length of antennal segment I; membrane, including veins, suffused with fuscous. **LEGS.** Pale yellow, pretarsal claws and last tarsal segment dark yellowish brown. **GENITALIA.** Figure 6. Ninth abdominal segment mostly dark brown.

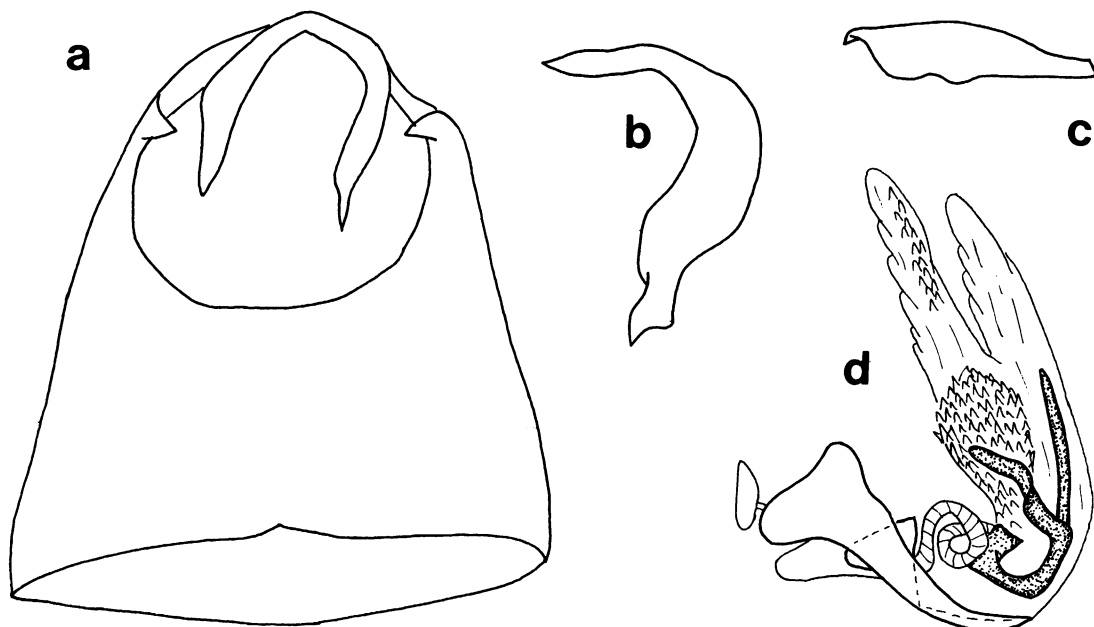


Fig. 6. Male genitalia of *Dioclerus lutheri*. a. Genital capsule, dorsal view. b. Left paramere, dorsal view. c. Right paramere, lateral view. d. Vesica with phallobase.

Vesica with two, small, elongate sclerites basally and less prominent membranous tubercles (fig. 6d). FEMALE. Unknown.

DISTRIBUTION: Sri Lanka (fig. 4).

DISCUSSION: Known from the male holotype only (UZMH).

SPECIMENS EXAMINED: SRI LANKA: 1♂, Anuradhapura, Dec. 19–21, 1910, A. Luther (holotype).

Dioclerus malayensis, new species

Figures 4, 7

DIAGNOSIS: Recognized by the large size; uniformly golden brown general coloration, without dark markings on pronotum, hemelytra, or ninth abdominal sternite; long labium; and by the structure of the male genitalia, especially the flattened process on left anterior margin of genital aperture (fig. 7a), long shaft of left paramere with strong hook-like apex (fig. 7c), and right paramere with ventral excavation at apex (fig. 7b).

DESCRIPTION: MALE. Length 4.35; pale golden brown general coloration, without dark brown markings; head and anterior lobe of pronotal disk slightly darker than hemelytra. HEAD. Width across eyes 0.95, width of vertex

0.41; eye occupying slightly more than half of head height in lateral view; antennae missing (see female description); labium reaching between mesocoxae, length 1.18. PRONOTUM. Posterior width 1.21. HEMELYTRA. Membrane pale, veins golden yellow. LEGS. Brownish yellow, pretarsal claws darker yellowish brown. GENITALIA. Figure 7. Vesica with two sclerites basally and prominent membranous tubercles (fig. 7d). FEMALE. Length 4.45; antennae dark reddish brown, segment I more yellowish brown; length of antennal segment I 0.79, segment II 1.29; cuneus much shorter than length of antennal segment I.

ETYMOLOGY: Named for its occurrence in the state of Malaya.

DISTRIBUTION: Malaya (fig. 4).

HOLOTYPE ♂: MALAYSIA: **Malaya:** *Selangor Prov.*: Kuala Lumpur, June 5, 1924, H. M. Pendlebury (BMNH).

PARATYPE: 1♀, same data as holotype (BMNH).

Dioclerus praefectus Distant

Figure 4

Dioclerus praefectus Distant, 1910a: 13 (n. sp.); 1910b: 279, fig. 151 (descr.).

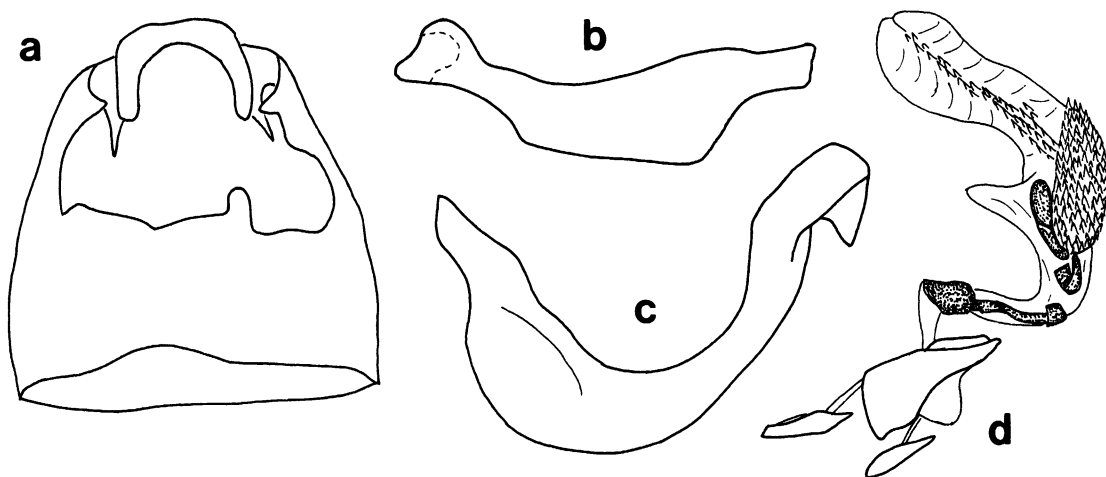


Fig. 7. Male genitalia of *Dioclerus malayensis*. a. Genital capsule, dorsal view. b. Right paramere, lateral view. c. Left paramere, dorsal view. d. Vesica with phallobase.

DIAGNOSIS: Recognized by the uniformly golden brown pronotal disk; long first antennal segment, length exceeding width of head across eyes; and length of antennal segment II much greater than posterior width of pronotum. Distinguished from the closely related *thailandensis* by the longer first antennal segment, without fuscous stripe ventrally, and apices of femora lightly suffused with fuscous.

REDESCRIPTION: LECTOTYPE. Hemelytra and abdomen missing, length reported as 4 mm in original description. **HEAD.** Golden brown; width across eyes 0.89, width of vertex 0.41; eye occupying three-fifths of head height in lateral view; labium reaching between mesocoxae, length 0.90; antennal segment I yellowish brown, length 0.98; antennal segment II darker brown, length 1.88; antennal segments III and IV missing. **PRONOTUM.** Posterior width 1.23. **HEMELYTRA.** Missing—the original description reports the clavus as “golden yellow,” the corium as “pale stramineous with a small dark spot on each side of claval apex,” and the membrane as “pale stramineous.” **LEGS.** Pale brownish yellow; apices of femora lightly suffused with fuscous ventrally; tarsi brown or dark yellowish brown. **GENITALIA.** Abdomen missing; original description reports “body beneath golden yellow,” with “apical spot to abdomen black.”

DISTRIBUTION: Sri Lanka (fig. 4).

LECTOTYPE (new designation): Label 1, “Type H.T.” [red-bordered disk]; 2, “*Dioclerus praefectus*, type, Dist.” [handwritten]; 3, “Peradeniya, Ceylon, 5-06”; 4, “Distant Coll., 1911-383” (BMNH). This specimen is in very poor condition with the left antenna and hind leg, hemelytra, and abdomen missing. However, I believe it is complete enough to allow for the recognition of the species. The sex of the lectotype cannot be determined as the abdomen is missing and no other specimens are available for comparison.

Dioclerus sabah, new species

Figure 4

DIAGNOSIS: Similar to *malayensis* but distinguished by the smaller body size, shorter labium, and ninth abdominal sternite with large, fuscous spot laterally. Distinguished from *praefectus* and *thailandensis* by the uniformly pale corium, without dark patch bordering apex of clavus, and from *lutheri* by the uniformly golden brown pronotal disk.

DESCRIPTION: FEMALE. Length 3.98; pale golden brown general coloration; inner margin of clavus, anal ridge of corium, and veins of hemelytral membrane suffused with fuscous. **HEAD.** Width across eyes 0.97, width of vertex 0.41; eye occupying slightly more than half of head height in lateral view; antennae dark brown, basal half of segment I mostly yellowish brown; length of antennal segment

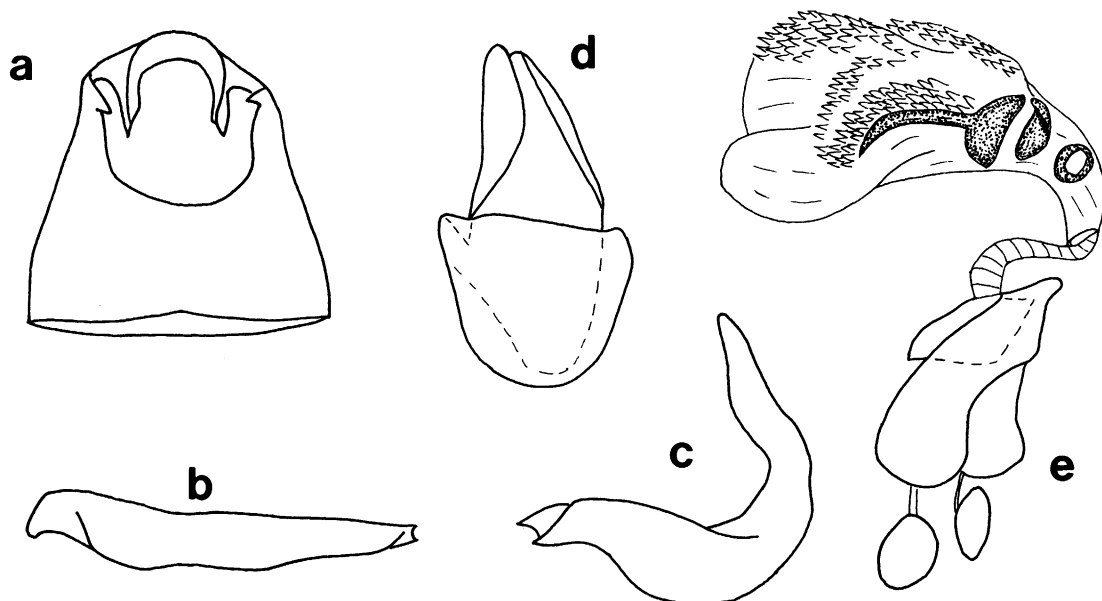


Fig. 8. Male genitalia of *Dioclerus thailandensis*. a. Genital capsule, dorsal view. b. Right paramere, lateral view. c. Left paramere, dorsal view. d. Phallosome. e. Vesica with phallobase.

I 0.62, segment II 1.29; labium reaching slightly beyond apices of procoxae, length 0.76. PRONOTUM. Posterior width 1.23. HEMELYTRA. Color as described above; cuneus about two-thirds as long as antennal segment I. LEGS. Brownish yellow; last tarsal segment and pretarsal claws darker yellowish brown. GENITALIA. Ninth abdominal segment with large, fuscous spot laterally; internal genitalic structures not examined. MALE. Unknown.

ETYMOLOGY: Named for the state of Sabah in Malaysia; a noun in apposition.

DISTRIBUTION: North Borneo (fig. 4).

HOLOTYPE ♀: MALAYSIA: **Sabah**: Tawau, Quoin Hill, July 3–7, 1962, light trap, H. Holtmann (BISH).

***Dioclerus thailandensis*, new species**

Figures 1, 4, 8

DIAGNOSIS: Similar to *praefectus* but distinguished by the shorter first antennal segment with fuscous stripe ventrally, length of segment distinctly less than width of head across eyes, and by the uniformly pale yellow femora, without fuscous suffusion apically. Distinguished from other species of *Dioclerus* by the long second antennal segment, length much greater than posterior width of pronotum (fig. 1), and by the structure of the male genitalia (fig. 8). The pronotal disk of *thailandensis* is uniformly brownish yellow and the corium has a large fuscous patch bordering apex of clavus.

DESCRIPTION: MALE. Length 3.88, pale brownish yellow general coloration; posterior margin of pronotal disk, scutellum, and clavus bordering scutellum slightly darker yellowish brown. HEAD. Width across eyes 0.91, width of vertex 0.38; eye occupying slightly less than two-thirds of head height in lateral view; antennal segment I pale yellow with longitudinal fuscous stripe ventrally, length 0.69; antennal segments II–IV dark brown, length of segment II 1.72; labium reaching between mesocoxae, length 0.94. PRONOTUM. Posterior width 1.18. HEMELYTRA. Length of cuneus two-thirds that of antennal segment I; membrane lightly tinged with yellowish brown. LEGS. Pale yellow, apices of tibiae and last tarsal segment darker brownish yellow. GENITALIA. Figure 8. Vesica with three small sclerites basally, distalmost one with narrow, distally directed medial process (fig. 8e); vesical membrane with prominent tubercles. Parameres laterally flattened distally. Genital capsule with large, fuscous spot distolaterally. FEMALE. Unknown.

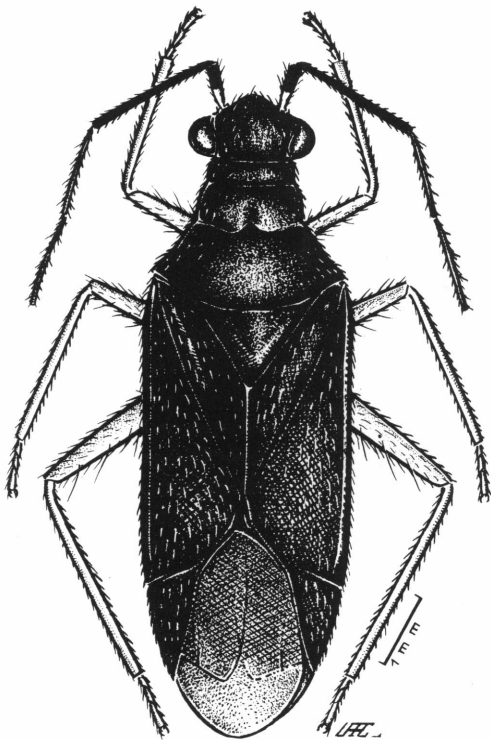


Fig. 9. *Harpedona plana*, holotype female (from Carvalho, 1981a).

ETYMOLOGY: Named for its occurrence in Thailand.

DISTRIBUTION: Northwestern Thailand (fig. 4).

HOLOTYPE ♂: THAILAND: Sam Ngao at Bhumipol Dam, Nov. 6–8, 1979, Copenhagen Mus. Expedition; deposited in the Universitets Zoologiske Museum, Copenhagen.

HARPEDONA DISTANT

Harpedona Distant, 1904b: 418 (n. gen.). Reuter, 1910: 163 (cat.).

Platypeltocoris Poppius, 1912a: 15–16 (n. gen.) (syn. by Carvalho, 1981a: 68).

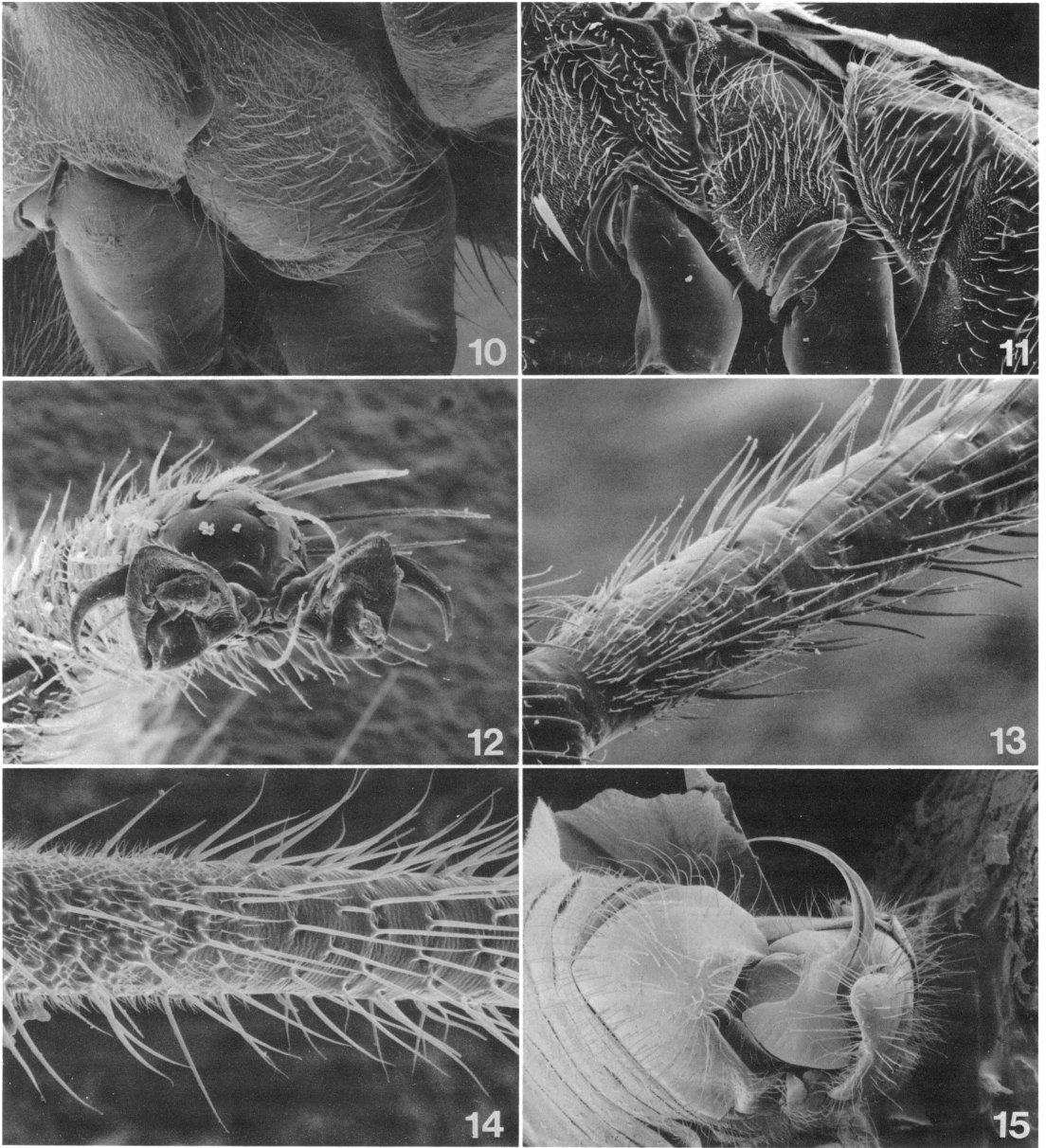
Maurocoris Poppius, 1914: 152–153 (n. gen.). NEW SYNONYMY.

Taivaniella Poppius, 1915a: 57–58 (n. gen.) (syn. by Carvalho, 1952: 55).

DIAGNOSIS: Recognized by the brown to black general coloration with strongly contrasting pale yellow or brownish yellow legs; sessile eyes; prominent, strongly rounded frons; labium reaching between mesocoxae

or beyond; pronotum with broad, anterior collar and distinct anterior and posterior lobes or disk; hemelytral membrane with narrow secondary cell visible along inner margin of cuneus; and by the structure of the male genitalia.

REDESCRIPTION: MALE. Length 3.25–5.00; width across humeral angles of pronotum 0.95–1.42; brown or black general coloration, hemelytra sometimes with pale regions on corium and cuneus; pronotum rugulose or sometimes with fine to moderately coarse punctures, hemelytra smooth or finely granulate; dorsal vestiture with densely distributed, upright, pale setae. HEAD. Frons prominent, convexly rounded, moderately to strongly produced anteriorly of eyes in dorsal view, sometimes with deep, longitudinal sulcus medially; vertex weakly or moderately rounded with narrow, smooth depression bordering inner margin of each eye; tylus moderately produced, junction with frons narrowly depressed; eyes sessile, occupying about one-half of head height in lateral view, posterior margin contiguous with anterior margin of pronotal collar; antennae inserted at or near level of ventral margin of eye, fossa narrowly removed from anterior margin of eye; antennae cylindrical, segment I narrowed basally, segments III and IV slightly narrower than I and II; antennal coloration brown or dark reddish brown, segment I sometimes lighter yellow or brownish basally, or rarely for entire length; all segments with semireclining, pale, simple setae; juga and lora broad, slightly swollen; genae broad; buccal cavity subspherical; gula narrow or obsolete; labium reaching between mesocoxae or beyond. PRONOTUM. Two-thirds to three-fourths as long as broad with broad, weakly rounded anterior collar and distinct anterior and posterior lobes of disk; collar and lobes well separated dorsally and laterally by deep, impressed lines giving appearance of three distinct pronotal divisions; calli prominent, reaching lateral margins of disk, separated medially by deep fossa; posterior lobe of disk weakly convex, posterior margin very slightly concave medially; mesoscutum concealed or narrowly exposed; scutellum weakly elevated, flattened or slightly excavated anteromedially; metathoracic scent efferent system as in figure 10. HEMELYTRA. Parallel-sided or



Figs. 10–15. *Harpedona marginata* and *Ambunticoris* sp. 10. Metathoracic scent efferent system, *H. marginata*. 11. Same, *Ambunticoris*. 12. Pretarsus, *H. marginata*. 13. Basal region of antennal segment II, *H. marginata*. 14. Same, *Ambunticoris* sp. 15. Posterior view of genital capsule, *H. marginata*.

very weakly rounded laterally; cuneus 1.5–3 times as long as broad, cuneal incisure shallow, fracture distinct; membrane lightly to heavily suffused with fuscous with large, triangulate primary cell and small, narrow secondary cell along inner margin of cuneus. LEGS. Pale yellow or brownish yellow; tibiae and tarsi sometimes marked with darker

brown; femora elongate, only slightly flattened, hind pair reaching apex of abdomen or slightly beyond; tibiae cylindrical, front pair swollen distally; tibial spines pale, rows of smaller spinules brown or golden brown; tarsi dilated distally; pretarsus as in figure 12. GENITALIA. Genital capsule highly modified (as in the genus *Mertila*), with large, often

lobate, right lateral process, sometimes narrowed distally and projecting medially across genital aperture; left margin of genital capsule swollen, sometimes with small lateral process, or rarely with larger, dorsally directed process arising from left ventral margin of genital aperture; ninth abdominal tergite at dorsomedial margin of genital aperture produced as a complex, sclerotized structure with cuplike, bulbous base and narrowed, sometimes tubular or spinelike, distal region; narrowed portion of dorsal sclerite sometimes membranous or weakly sclerotized distally and enclosing smaller tubular sclerite, dorsal sclerite sometimes with one or two, smaller accessory tubercle(s) or spinelike process(es) usually arising from dorsal or distal surface; genital aperture large; posteriorly oriented. Parameres and paramere sockets reduced, situated on ventromedial margin of genital aperture; sockets nearly contiguous medially, sometimes with associated flange or process laterally. Left paramere variable, usually strongly twisted medially with elongate arm and narrow upright shaft, sometimes swollen distally or with hooklike or hammerlike apex, rarely less strongly twisted medially with broader shaft and unmodified apex; sensory lobe weakly to strongly produced. Right paramere simple, elongate with acute, often incurved apex, or shorter and broader with bifurcate or bilobed apex; inner distal surface sometimes slightly excavated. Vesica very small, consisting of a single tubular, curved sclerite enclosed by entirely membranous phallosome, with lightly to heavily sclerotized saclike structure distally. FEMALE. Length 3.25–5.25. Similar to male in color, structure and vestiture.

TYPE SPECIES: *Harpedona marginata* Distant. Types of junior synonyms: *Platypeltocoris planus* Poppius; *Maurocoris unicolor* Poppius; *Taivaniella fulvigenis* Poppius.

DISTRIBUTION: Widely distributed in the Indo-Pacific region from Sri Lanka and northern India, north and east to Taiwan, and in the tropical west Pacific to the Solomon Islands (fig. 16).

DISCUSSION: *Harpedona* belongs to a monophyletic group of seven or possibly eight genera recognized by the following characters: (1) labium reaching at least between mesocoxae, sometimes considerably beyond; (2) basal region of second antennal segment

smooth or faintly roughened, with scattered, fine trichia (fig. 13)—other Old World Eccritotarsini have the basal region of the second antennal segment moderately to strongly roughened, with numerous fine trichia (fig. 14); (3) peritremal disk of metathoracic scent efferent system narrow and only weakly inflated, usually with densely setate medial canal (fig. 10)—peritremal disk broader and more strongly inflated in other eccritotarsines (fig. 11); (4) hemelytral membrane with large, elongate primary cell and usually with narrow secondary cell along inner margin of cuneus; (5) highly modified male genitalia with spine-like or tubular dorsal process(es) on genital capsule (fig. 15), large, often lobate process(es) on right lateral and sometimes left lateral margin of genital capsule bordering aperture (figs. 21–24), and greatly reduced parameres and vesica, situated on ventromedial margin of genital aperture (fig. 24a). Within this group of genera, *Harpedona* and its sister genus *Anthropophagiotes* are distinguished by the uniformly brown to black general coloration; dorsal process of genital capsule with two spinelike distal projections (also characteristic of *Mertila* species); shaft of left paramere elongate, abruptly curved upward at angle, swollen distally or with strong hooklike or hammerlike apex; and phallosome with lightly to heavily sclerotized, saclike structure distally. Characters unique to *Harpedona* are the uniformly pale yellow legs; greatly reduced right distal projection of the dorsal process of the genital capsule; and left margin of genital capsule swollen, but usually without associated processes.

Comparison of the type and other specimens of *Maurocoris unicolor* Poppius with *Harpedona marginata* Distant as well as other *Harpedona* species indicates that *Maurocoris* possesses the defining characters of *Harpedona*, differing only in the more robust, autapomorphic parameres and the unique structure of the dorsal process of the genital capsule. All other diagnostic features being identical, *Maurocoris* is here proposed as a junior synonym by priority, thus creating the new combination *Harpedona unicolor* (Poppius).

The feeding habits of *Harpedona* species are unknown, except for *marginata*, which has been recorded from various localities feeding on the foliage of *Dioscorea alata* Linn.

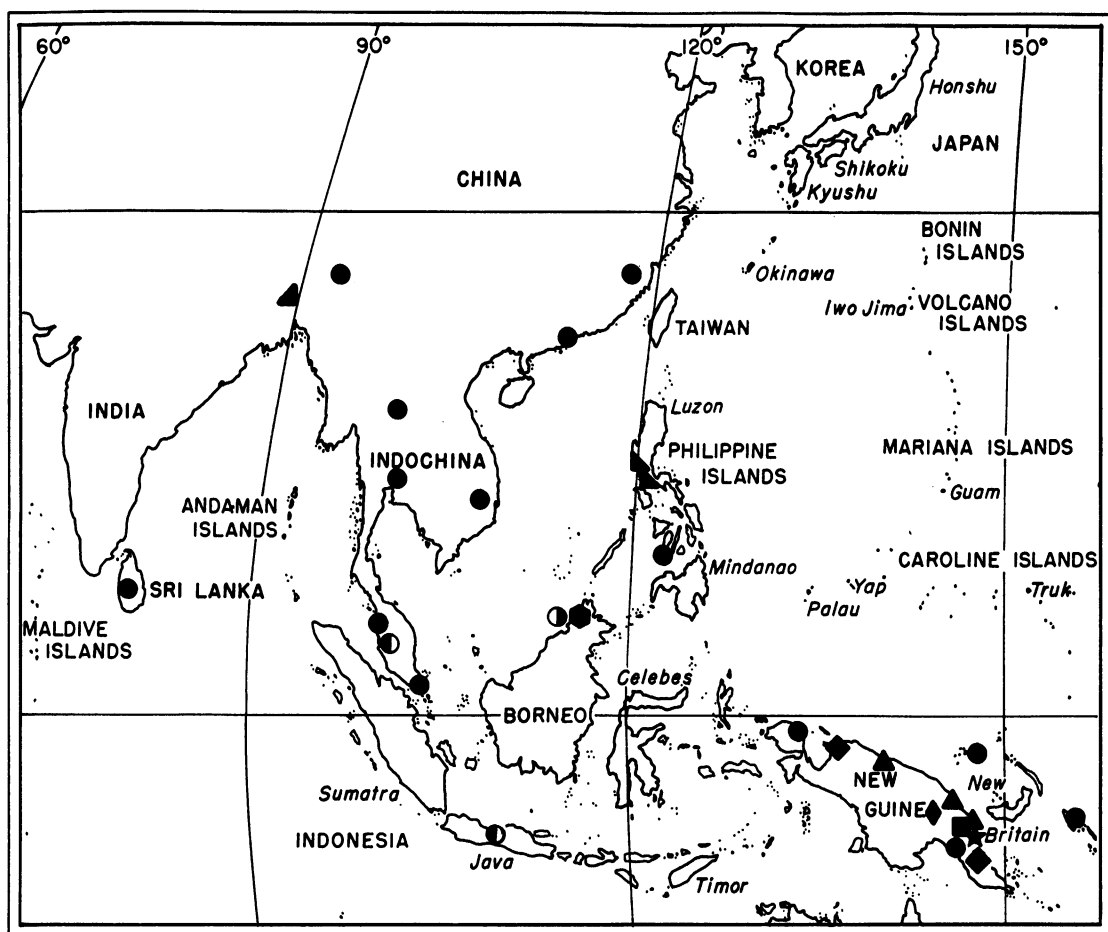


Fig. 16. Distribution of *Harpedona* species: ▴, *cuneale*; ◆, *gressitti*; ■, *laensis*; ●, *maai*; ○, *marginata*; ▲, *plana*; ▴, *sanguinipes*; ○, *tenompokensis*; ○, *unicolor*; ◆, *verticolor*; ★, *wau*.

and in one instance on *Ipomoea* sp. The feeding records given by Carvalho (1981a: 69) regarding these two plants pertain to *marginata* and not *plana* as reported. In his generic discussion, Carvalho (1981a) makes the general statement that *Harpedona* is a pest of yams (*Dioscorea* species) in Papua New Guinea. Only the records for *marginata* seem to support this claim.

CLADISTIC ANALYSIS: The genus *Anthrophagiotes* Kirkaldy was used as the out-group to establish the polarity of the characters for the proposed *Harpedona* phylogeny. These two genera form a monophyletic group based on the apomorphic characters given in the previous section. Descriptions of the 17 characters used in the analysis of *Harpedona* species are given in table 3. The hand-cal-

culated analysis of the information provided in table 4 revealed one minimal length tree of 26 steps (fig. 17).

Because some structures were not preserved in genitalic preparations performed by previous workers, the following characters could not be determined for certain taxa: (1) characters 6 and 17 are unknown for *gressitti*, *verticolor*, and *wau*; (2) characters 7 and 8 are not known for *verticolor*. Coding of characters 9 and 10 for *gressitti*, *verticolor*, and *wau* was based on my interpretation of the genitalic illustrations provided by Carvalho (1981a: 70–71). Removal of these characters from the analysis will not alter the topology of the tree depicted in figure 17. However, because so many characters are unknown for *verticolor*, its relationship to other taxa is un-

TABLE 3
Description of *Harpedona* Characters^a

Coloration and texture	
1.	0(1)—hemelytra uniformly brown, dark brown, or black. 1(1)—hemelytra with distinct pale markings.
2.	0(2)—pronotal disk impunctate. 1(1)—pronotal disk with faint to moderately coarse punctures.
Head	
3.	0(1)—frons unmodified. 1(1)—frons with deep fovea or longitudinal sulcus medially.
4.	0(1)—vertex weakly to moderately convex, not or only slightly produced above eyes in lateral view. 1(1)—vertex strongly inflated, noticeably produced above eyes in lateral view.
5.	0(1)—length of labium much greater than posterior width of pronotum. 1(1)—length of labium subequal to or less than posterior width of pronotum.
Processes of genital capsule	
6.	0(1)—dorsal margin of left paramere socket with short, rounded process. 1(2)—dorsal margin of left paramere socket with long, narrow process.
7.	0(1)—primary distal projection of dorsal process fully sclerotized, without inner tubular sclerite. 1(1)—primary distal projection of dorsal process membranous or weakly sclerotized apically, with inner tubular sclerite.
8.	0(1)—secondary distal projection of dorsal process well developed. 1(2)—secondary distal projection of dorsal process greatly reduced.
9.	0(1)—left ventral margin of genital aperture unmodified. 1(2)—left ventral margin of genital aperture with large elongate process.
10.	0(1)—right lateral process of genital aperture with rounded or broadly bilobed apex. 1(1)—right lateral process of genital aperture with long, narrow apex.
Left paramere	
11.	0(1)—angle broad, moderately deep; shaft curving upward and away from arm. 1(1)—angle narrow, shallow; shaft abruptly curved upward, not or only slightly directed away from arm.
12.	0(1)—shaft with broad, spinelike process on outer distal surface. 1(1)—shaft without spinelike process on outer distal surface.

TABLE 3—(Continued)

13.	0(2)—apex unmodified or somewhat swollen. 1(1)—apex strongly hooked or hammerlike.
Right paramere	
14.	0(1)—short, usually broader distally, apex usually modified. 1(1)—elongate, nearly linear, apex unmodified.
15.	0(1)—apex blunt, often bilobed or bifurcate. 1(2)—apex strongly narrowed, often acute.
16.	0(1)—not or only weakly inflected distally. 1(2)—strongly inflected distally.
Phallosome	
17.	0(1)—distal saclike structure large, heavily sclerotized. 1(3)—distal saclike structure small, lightly sclerotized.

^a Numbers followed by a period are coded characters at top of table 4; numbers in second column are character states (0 = plesiomorphic state, 1 = apomorphic state; see body of table 4); numbers in parentheses indicate the number of origins of the character state on the cladogram.

certain, and thus is indicated in figure 17 by a dashed line. For example, if *verticolor* was scored the apomorphic state for characters 6, 7, 8, and 17 and *gressitti* and *wau* the apomorphic state for characters 6 and 17 an equally parsimonious resolution of the data presented in table 4 would have *verticolor* in an unresolved position at component I in figure 17. In this position, *verticolor* would be defined by reversals for characters 5, 9, 11, and 12.

KEY TO MALES OF *HARPEDONA* SPECIES

- 1. Cuneus and part or most of corium pale brownish yellow 2
Cuneus and corium uniformly brown or dark brown 3
- 2. Corium, except inner posterior angle bordering apex of clavus, pale; second antennal segment longer than width of head across eyes; genitalia as in figure 25
..... *tenompokensis*, new species
Corium with anterior third and extreme apex bordering cuneal fracture pale; second antennal segment about as long as width of head across eyes; genitalia as in figure 21
..... *maai*, new species
- 3. Frons with distinct longitudinal sulcus medially 4
Frons without sulcus medially 5

- 4. Frons with short, pitlike sulcus; metafemora with fuscous stripe on dorsodistal surface; dorsal process of genital capsule with broad, apically blunt distal projection (fig. 18b) *cuneale* (Poppius)
Frons with long, groovelike sulcus; metafemora without fuscous stripe on dorsodistal surface; dorsal process of genital capsule with long, curved, acuminate distal projection (fig. 22a) *marginata* Distant
- 5. Length of labium much greater than posterior width of pronotum 6
Length of labium about equal to posterior width of pronotum 8
- 6. Vertex with large, pale spot medially; second antennal segment shorter than width of head across eyes; pronotal disk distinctly punctate; genitalia as in figure 27
..... *verticolor* Carvalho
Vertex uniformly brown or dark brown; second antennal segment as long or longer than width of head across eyes; pronotal disk impunctate 7
- 7. Length of antennal segment II much greater than width of head across eyes; body length 4.80–5.00; genitalia as in figures 26
..... *unicolor* (Poppius)
Length of antennal segment II equal to width of head across eyes; body length 3.70 (lectotype); genitalia as in figure 24
..... *sanguinipes* Distant
- 8. Length of antennal segment II much greater than width of head across eyes; body length 4.50–5.00 9
Length of antennal segment II about equal to width of head across eyes; body length 3.60–3.85 10
- 9. Vertex strongly convex, well produced above eyes in lateral view, pronotal disk faintly roughened, lacking distinct punctures; body length 4.50 (holotype); genitalia as in figure 19 *gressitti*, new species
Vertex weakly convex, only slightly produced above eyes in lateral view; pronotal disk finely punctate; body length 5.00 (holotype); genitalia as in figure 28
..... *wau*, new species
- 10. Antennal segment I brown, basal fourth pale; vertex weakly convex; body length 3.85 (holotype); genitalia as in figure 23
..... *plana* (Poppius)
Antennal segment I pale yellow or brownish yellow, sometimes lightly tinged with red; vertex noticeably inflated, with shallow depression medially; body length 3.60–3.70; genitalia as in figure 20
..... *laensis*, new species

Harpedona cuneale (Poppius)
Figures 16, 18

Taivaniella cuneale Poppius, 1915b: 84–85 (n. sp.).
Harpedona cuneale: Carvalho, 1952: 55 (n. comb.).

DIAGNOSIS: Recognized by the dark brown general coloration, often with corium and cuneus lighter brown; second antennal segment distinctly longer than width of head across eyes; labium about as long as posterior width of pronotum; frons of male with short, longitudinal sulcus; meta- and sometimes mesofemora with fuscous stripe on dorsodistal surface; basal two-thirds of tibiae brown or dark brown; and structure of the male genitalia.

REDESCRIPTION: MALE. Length 3.50–3.85; dark brown general coloration; corium and outer half of cuneus often lighter brown; apex of corium, excluding embolium, and inner half of cuneus yellowish white. HEAD. Width across eyes 0.74–0.78, width of vertex 0.38–0.39; vertex nearly flat, not noticeably produced above eyes in lateral view; frons with short, longitudinal sulcus medially; antennae dark reddish brown; segment I sometimes lighter yellowish brown especially near base; length of antennal segment I 0.30–0.34, segment II 1.12; labium reaching between mesocoxae, length 1.00. PRONOTUM. Posterior width 1.02–1.14; disk very faintly punctate. HEMELYTRA. Parallel-sided; cuneus about 2.5 times as long as broad; membrane lightly suffused with fuscous, especially inside areolar cells, veins brownish. LEGS. Femora brownish yellow, meta- and sometimes mesofemora with fuscous stripe on dorsodistal surface; basal two-thirds of tibiae brown or dark brown; distal third of tibiae and tarsi yellowish brown; pretarsal claws brown. GENITALIA. Figure 18. Dorsal process of genital capsule with broad, apically blunt distal projection and narrow, elongate secondary projection arising near base and oriented parallel to primary projection (fig. 18b); phallosome with large, heavily sclerotized saclike structure distally. FEMALE. Length 3.50–3.75; frons without longitudinal sulcus medially.

DISTRIBUTION: Northern Philippine Islands (fig. 16).

LECTOTYPE ♂ (new designation): Label 1, “Los Banos, P. I., Baker”; 2, “*Taivaniella cuneale* n. sp.” [handwritten]; 3, “Mus. Zool.

TABLE 4
Character Matrix for *Harpedona* Species

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
<i>cuneale</i>	0	1	1	0	1	0	0	0	1	0	0	1	0	0	0	0	0
<i>gressitti</i>	0	0	0	1	1	?	1	1	1	0	1	1	1	0	1	1	?
<i>laensis</i>	0	1	0	1	1	1	1	1	1	0	1	1	1	0	1	1	1
<i>maai</i>	1	1	0	0	1	1	1	0	1	0	1	1	1	1	1	0	1
<i>marginata</i>	0	1	1	0	1	0	0	0	1	0	0	1	1	0	0	0	0
<i>plana</i>	0	1	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0
<i>sanguinalis</i>	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
<i>tenompokensis</i>	1	1	0	0	1	1	1	0	1	0	1	1	1	1	1	0	1
<i>unicolor</i>	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0
<i>verticolor</i>	0	1	0	0	0	?	?	?	0	0	0	0	1	0	1	1	?
<i>wau</i>	0	1	0	0	1	?	1	1	1	0	1	1	1	0	1	0	?

?—missing character information.

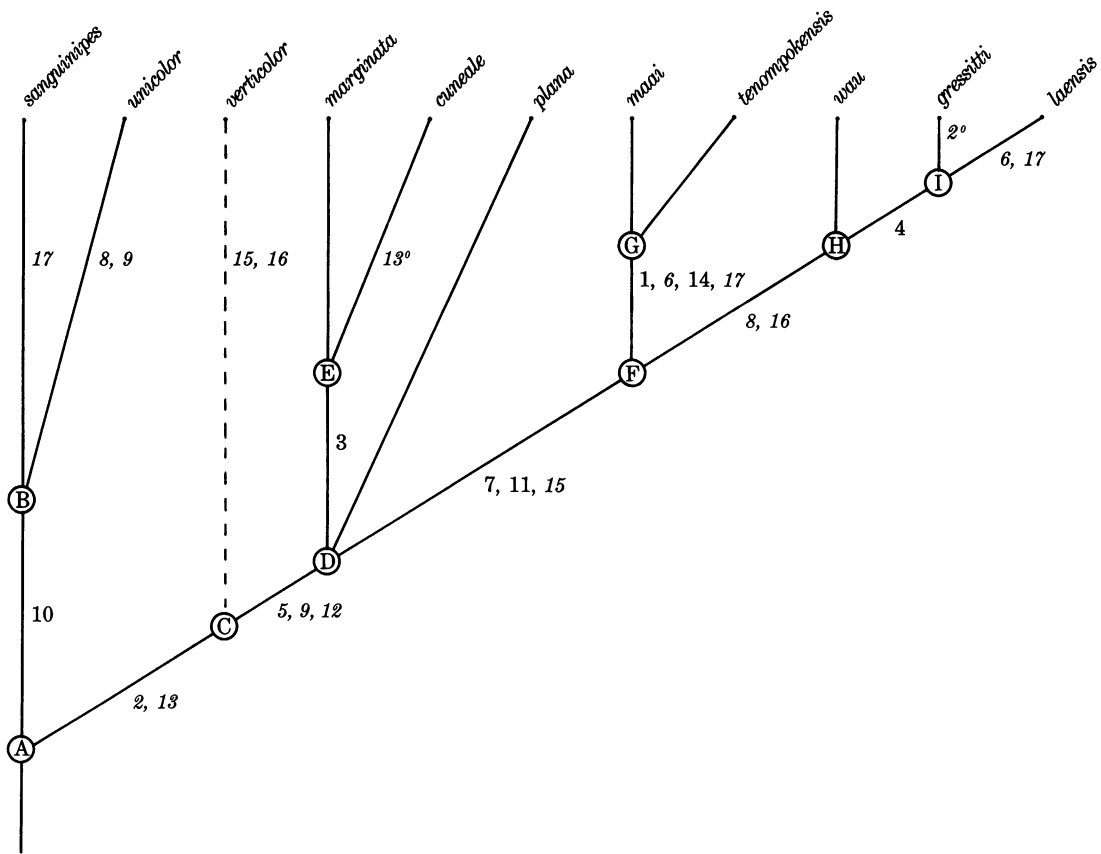


Fig. 17. Cladogram of *Harpedona* species. Numbers are characters; homoplasious characters given in italics (parallelism) and italics with superscript zero (reversal); letters identify components discussed in text.

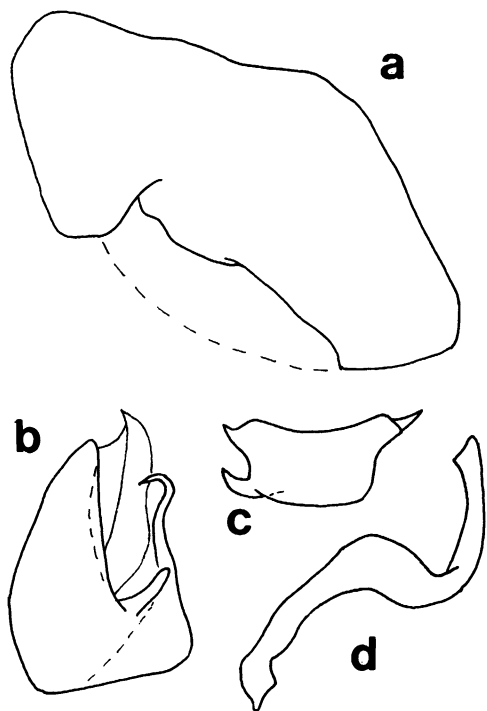


Fig. 18. Male genitalia of *Harpedona cuneale*. a. Genital capsule, right lateral view (paramere sockets region missing). b. Dorsal process of genital capsule. c. Right paramere, lateral view. d. Left paramere, lateral view.

H: fors, Spec. typ. No. 10074, *Taivaniella cuneale* Popp." (UZMH).

PARALECTOTYPE: 1♀, same data as lectotype but with Helsinki Spec. typ. No. 10075 (UZMH).

ADDITIONAL SPECIMENS: PHILIPPINE ISLANDS: Luzon: 2♀, Los Banos, C. F. Baker (USNM); 4♀, Mt. Makiling, C. F. Baker (USNM); 1♂, San Antonio, May 12, C. S. Banks (USNM).

Harpedona fulvigenis (Poppius)

Taivaniella fulvigenis Poppius, 1915a: 58 (n. sp.).
Harpedona fulvigenis: Carvalho, 1952: 55 (n. comb.).

DISCUSSION: Described by Poppius (1915a) from a single female specimen collected at "Taihorinsho [Taiwan], 7.IX.1909" and reported as deposited in the "D[eutsch]. E[ntomol]. M[useum]," now the Zoologisches Museum, Museum für Naturkunde der Humboldt Universität, Berlin. This speci-

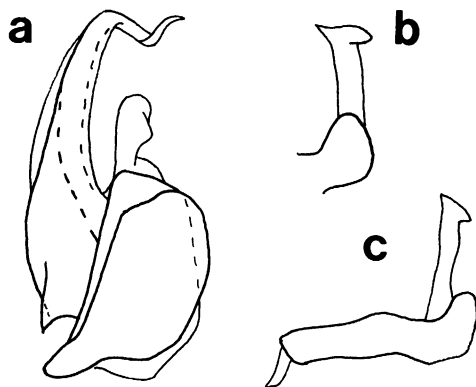


Fig. 19. Male genitalia of *Harpedona gressitti*. a. Dorsal process of genital capsule. b, c. Left paramere. b. Posterior view. c. Lateral view.

men was not found in the Berlin Museum or in the collections of the HNHM or UZMH. Although it is likely that the type is lost or destroyed, a neotype will not be designated here as the original description is inadequate for positive recognition of the species. Based on the distribution of *fulvigenis*, it is highly probable that it is a junior synonym of *marginata* Distant.

Harpedona gressitti, new species

Figures 16, 19

DIAGNOSIS: Recognized by the large body size; brownish general coloration with pronotum and scutellum nearly black; prominent, rounded vertex; labium reaching between mesocoxae, length about equal to posterior width of pronotum; faintly roughened pronotal disk, without distinct punctures; and structure of the male genitalia, especially the form of the dorsal process of the genital capsule (fig. 19a) and left paramere with hammerlike apex (fig. 19b, c).

DESCRIPTION: MALE. Length 4.50; brownish general coloration, pronotum and scutellum nearly black, vertex and most of frons dark yellowish brown. HEAD. Width across eyes 0.76; width of vertex 0.42; vertex prominent, convexly rounded, strongly produced above eyes in lateral view; antennal segments I and II reddish brown, segments III and IV missing; length of antennal segment I 0.35, segment II 0.99; labium reaching between mesocoxae, length 1.24. PRONOTUM. Posterior width 1.28; disk faintly roughened,

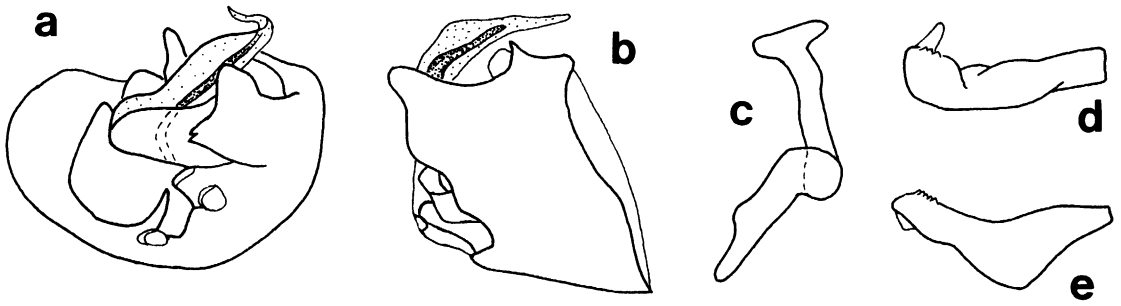


Fig. 20. Male genitalia of *Harpedona laensis*. a, b. Genital capsule. a. Posterior view. b. Right lateral view. c. Left paramere, lateral view. d, e. Right paramere. d. Dorsal view. e. Lateral view.

somewhat granulate, lacking distinct punctures. HEMELYTRA. Spread on holotype specimen, appearing parallel-sided; cuneus about 2.5 times as long as broad; membrane and veins fuscous. LEGS. Pale yellow, pretarsal claws yellowish brown. GENITALIA. Figure 19. Right paramere, vesica, and all but dorsal process of genital capsule missing from previous dissection; dorsal process of capsule small, narrowed distally, and enclosing tubular sclerite (fig. 19a). FEMALE. Unknown.

ETYMOLOGY: Named for J. L. Gressitt.

DISTRIBUTION: Papua New Guinea (fig. 16).

HOLOTYPE ♂: PAPUA NEW GUINEA: **Western Highlands Prov.**: Tsenga, 1200 m, Upper Jimmi Valley, July 13, 1955, J. L. Gressitt (BISH). This specimen was identified by Carvalho (1981a) as *plana*, where it was included in the locality data and used, at least in part, for the genitalic illustrations provided for that species. *Harpedona gressitti* is easily distinguished from *plana* by its larger body size; prominent, rounded vertex; roughened pronotal disk without punctures; and structure of the male genitalia.

***Harpedona laensis*, new species**

Figures 16, 20

DIAGNOSIS: Recognized by the small size; uniformly dark brown hemelytra; entirely pale first antennal segment, sometimes lightly tinged with red; inflated vertex with shallow depression medially; labium about as long as posterior width of pronotum; and structure of the male genitalia.

DESCRIPTION: MALE. Length 3.60–3.70; dark brown general coloration; pronotum and scutellum nearly black. HEAD. Black, except

vertex, tylus, juga, and lora brown or dark brown; width across eyes 0.71–0.75, width of vertex 0.39–0.41; vertex noticeably inflated, with shallow, longitudinal depression medially; antennal segment I pale yellow or brownish yellow, sometimes lightly tinged with red especially on ventral aspect; antennal segments II–IV brown or dark reddish brown; length of antennal segment I 0.24–0.25, segment II 0.69–0.74; labium reaching between mesocoxae, length 1.02–1.15. PRONOTUM. Posterior width 1.05–1.08; disk with very shallow, faint punctures. HEMELYTRA. Parallel-sided; cuneus slightly more than two times as long as broad; membrane and veins fuscous. LEGS. Pale yellow; pretarsal claws yellowish brown. GENITALIA. Figure 20. Dorsal process of genital capsule with long, narrow, mostly membranous distal region enclosing smaller, tubular sclerite; ninth abdominal tergite just anterior of dorsal process with dorsally directed thumblike projection (fig. 20a). FEMALE. Length 3.60–3.80.

ETYMOLOGY: Named for the type locality.

DISTRIBUTION: Papua New Guinea (fig. 16).

HOLOTYPE ♂: PAPUA NEW GUINEA: **Morobe District**: Lae, Aug. 20, 1972, G. G. E. Scudder (BISH).

PARATYPES: 8♂, 5♀, same data as holotype with collection dates Aug. 19 and 20, 1972 (AMNH, BISH).

***Harpedona maai*, new species**

Figures 16, 21

DIAGNOSIS: Recognized by the pale cuneus and anterior third of the corium; short labium, length distinctly less than posterior

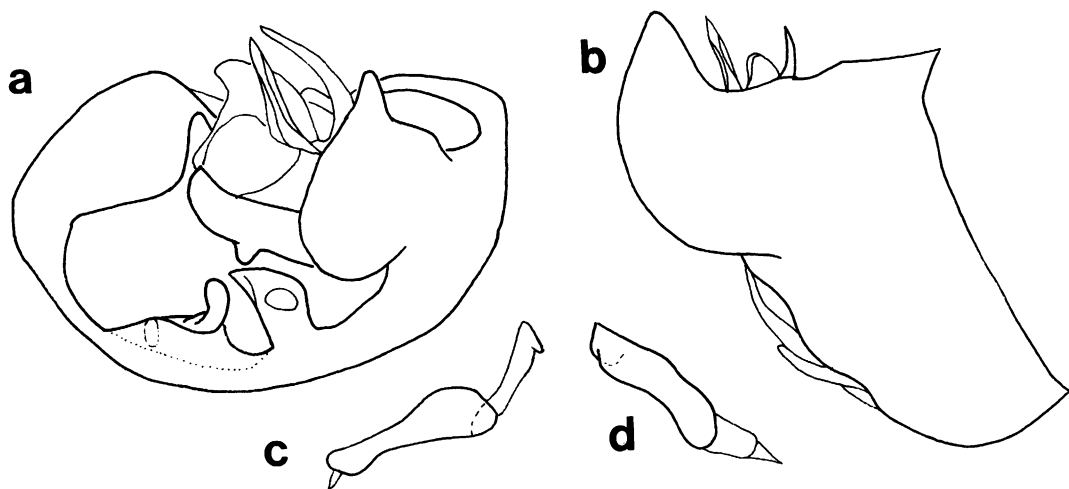


Fig. 21. Male genitalia of *Harpedona maai*. a, b. Genital capsule. a. Posterior view. b. Right lateral view. c. Left paramere, lateral view. d. Right paramere, lateral view.

width of pronotum; and structure of the male genitalia. Distinguished from the closely related *tenompokensis* by the hemelytral color pattern, slightly broader head, and shape of the left paramere (fig. 21c).

DESCRIPTION: MALE. Length 3.40; dark brown general coloration; head, pronotum, and scutellum nearly black; anterior third and extreme apex of corium pale translucent yellow; cuneus pale, distal third suffused with fuscous. **HEAD.** Width across eyes 0.65, width of vertex 0.35; vertex weakly convex; antennal segment I uniformly brownish yellow, length 0.24; antennal segment II dark reddish brown, length 0.62; antennal segments III and IV missing; labium reaching between mesocoxae, length 0.86. **PRONOTUM.** Posterior width 1.11; disk finely punctate. **HEMELYTRA.** Parallel-sided; cuneus about 1.5 times as long as broad; membrane and veins fuscous. **LEGS.** Brownish yellow, pretarsal claws darker yellowish brown. **GENITALIA.** Figure 21. Dorsal sclerotized structure of genital capsule with two dorsally situated, spinelike processes of similar size, left process enclosing smaller, tubular sclerite; bulbous base of dorsal structure with large, posteriorly directed tubercle on distal surface (fig. 21a). **FEMALE.** Unknown.

ETYMOLOGY: Named for T. C. Maa.

DISTRIBUTION: North Borneo (fig. 16).

HOLOTYPE ♂: MALAYSIA: **Sabah:** Tenompok, Feb. 13, 1959, T. C. Maa (BISH).

Harpedona marginata Distant

Figures 16, 22

Harpedona marginata Distant, 1904b: 419, fig. 266 (n. sp.). Carvalho, 1981a: 69–70, figs. 130–133 (descr.); 1981b: 3 (note).

DIAGNOSIS: Very similar to *cuneale* but distinguished by slightly broader head with longer, deeper sulcus on frons of male; labium usually slightly shorter than posterior width of pronotum; femora without fuscous stripe on dorsodistal surface; and structure of the male genitalia, especially the long, acuminate distal projection of the dorsal process (fig. 22a) and phallosome with large, heavily sclerotized, saclike structure distally (fig. 22e).

REDESCRIPTION: MALE: Length 3.25–3.80; dark brown to nearly black general coloration; corium and cuneus sometimes lighter brown, with margins of cuneal fracture narrowly pale; embolium rarely yellowish brown with fuscous outer margin as in type specimen. **HEAD.** Width across eyes 0.69–0.71, width of vertex 0.35–0.38; vertex moderately convex, narrowly visible above eyes in lateral view; frons with deep longitudinal sulcus medially, reaching from near level of anterior margins of antennal fossae to middle of vertex, inner margins of sulcus densely lined with short setae; antennae brown or dark reddish brown, segment I usually lighter yellowish brown at least basally; length of antennal segment I 0.27–0.35, segment II 0.78–1.10; labium reaching apex of mesosternum or be-

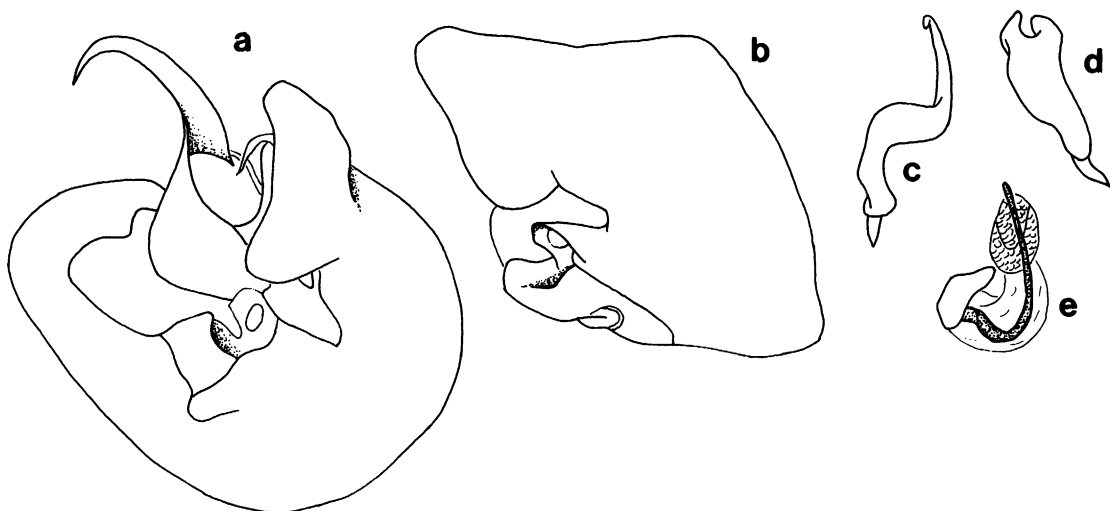


Fig. 22. Male genitalia of *Harpedona marginata*. a, b. Genital capsule. a. Posterior view. b. Right lateral view. c. Left paramere, lateral view. d. Right paramere, lateral view. e. Vesica, phallosome, and phallobase.

tween mesocoxae, length 0.79–1.00. PRONOTUM. Posterior width 0.95–1.05; disk faintly punctate. HEMELYTRA. Parallel-sided; cuneus about 2.5 times as long as broad; membrane and veins fuscous. LEGS. Pale yellow or brownish yellow; basal two-thirds to three-fourths of hind tibiae brownish. GENITALIA. Figure 22. Dorsal process of genital capsule with long, acuminate distal projection, without inner tubular sclerite—shorter, apically recurved, secondary projection arising from right basal margin of primary projection (fig. 22a); phallosome with large sclerotized sac distally (fig. 22e). FEMALE. Length 3.35–3.92; frons without longitudinal sulcus medially.

DISTRIBUTION: Widely distributed in the Indo-Pacific from Sri Lanka to the Fukien Province in China, throughout southeast Asia, and east in the tropical west Pacific to the Solomon Islands (fig. 16).

TYPE: Distant's (1904b) statement that "the type with the corium wholly black is in the British Museum," is sufficient information for a type designation. The specimen referred to has the following label data: Label 1, "Type" [red-bordered disk]; 2, "*Harpedona marginata* Dist." [handwritten]; 3, "Ceylon, Green Coll. 90-115."; 4 (here added), "HOLOTYPE, *Harpedona marginata* Distant, det. by G. M. Stonedahl, 1986." This specimen is deposited in the BMNH.

DISCUSSION: Specimens examined from Sri Lanka, including the holotype, differ slightly from Asian and Pacific Island individuals by the slightly longer first and second antennal segments and dorsal process of genital capsule with shorter, apically membranous distal projection. These two widely separated populations are treated here as conspecific since all other diagnostic external and genitalic features are indistinguishable. I have examined specimens of the variety referred to by Distant (1904b) in the original description and found them to be nothing more than teneral individuals with lighter general coloration and the embolus uniformly brown.

Distant (1904b) reported *marginata* to be a pest of yam plants, *Dioscorea* sp. Since that time it has been recorded from numerous localities feeding on the foliage of *Dioscorea alata* Linn., and in one instance on *Ipomoea* sp. (the later record as *plana* in Carvalho 1981a: 71).

SPECIMENS EXAMINED: 175 specimens from the following localities: BURMA: Mishmi Hills, Dingliang, 2450 ft (BMNH). PEOPLE'S REPUBLIC OF CHINA: Fukien Prov.: YungAn (BISH). INDONESIA: West Irian: Vogelkop, "Danowaria" [probably a misspelling of Manokwari] (BISH). LAOS: Vientiane Prov.: BanVanEue (BISH). MACAU (CAS). MALAYSIA: Malaya: Kedah Prov., Serdang (BMNH). PAPUA NEW GUINEA: Bougainville Prov.: Bou-

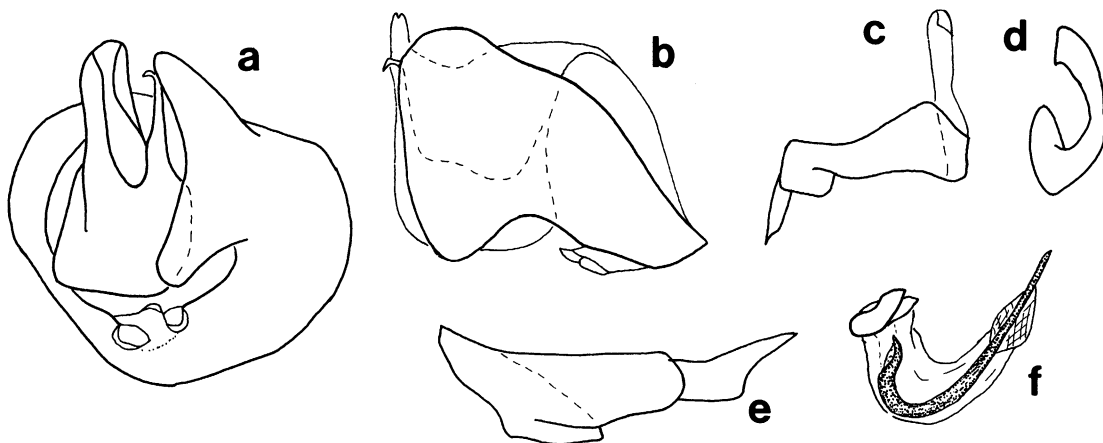


Fig. 23. Male genitalia of *Harpedona plana*. a, b. Genital capsule. a. Posterior view. b. Right lateral view. c, d. Left paramere. c. Lateral view. d. Posterior view. e. Right paramere, lateral view. f. Vesica, phallosome, and phallobase.

gainville Is., Kieta (BISH). **Manus Prov.:** Manus Is., Momote (BISH). **Morobe Prov.:** Lae, Busu R. (BISH); Situm via Lae (BISH); Wau (AMNH, BISH); Markham Rd., 4 mi from Lae (BISH). **PHILIPPINE ISLANDS:** **Negros Oriental:** Sibulan (BISH). **SINGAPORE** (USNM). **SRI LANKA:** Peradeniya (BMNH). **THAILAND:** Pakchong, 100 m, NE of Bangkok (BISH). **VIETNAM:** BanMeThuot, 500 m (BISH).

Harpedona plana (Poppius)

Figures 9, 16, 23

Platypeltocoris planus Poppius, 1912a: 16–17 (n. sp.).

Harpedona plana: Carvalho, 1981a: 71, figs. 135–140 (n. comb., descr.).

Platypeltocoris similis Poppius, 1912a: 17 (n. sp.). Carvalho, 1981a: 71, fig. 134 (n. syn.).

DIAGNOSIS: Distinguished from *maai* and *tenompokensis* by the uniformly dark brown or black hemelytra and slightly larger body size; from *cuneale* and *marginata* by the shorter second antennal segment, length about equal to width of head across eyes, and shape of the parameres (fig. 23c–e); from *laensis* by the dark first antennal segment and weakly convex vertex; from *sanguinipes* by the faintly punctate pronotum and shorter labium; and from the remaining species of *Harpedona* by the smaller body and structure of the male genitalia.

REDESCRIPTION: MALE. Length 3.85; dark brown general coloration; head dorsally, pronotum, and scutellum nearly black; tylus, jugs, and lora lighter brown. **HEAD.** Width

across eyes 0.77, width of vertex 0.36; vertex weakly convex, only slightly produced above eyes in lateral view; antennal segment I brown, basal fourth brownish yellow; length of antennal segment I 0.31, segments II–IV missing; labium reaching between mesocoxae, length 1.12. **PRONOTUM.** Posterior width 1.12; disk faintly punctate. **HEMELYTRA.** Parallel-sided; cuneus about 2.5 times as long as broad; membrane and veins fuscous. **LEGS.** Pale brownish yellow. **GENITALIA.** Figure 23. Genital capsule with large, triangulate right lateral process (fig. 23a, b); dorsal process of capsule with large, subquadrate, bulbous base and short, broad, apically blunt, distal projection without inner tubular sclerite (fig. 23a); dorsal process also with narrow, apically recurved, secondary projection arising near base and oriented parallel to primary projection; phallosome with heavily sclerotized sac distally (fig. 23f). **FEMALE.** Length 3.75–4.00; antennal segments II–IV dark brown; length of antennal segment I 0.29–0.32, segment II 0.79–0.88.

DISTRIBUTION: New Guinea (fig. 16).

TYPES: *Platypeltocoris plana* was described from a single female specimen with the following label data: Label 1, “N. Guinea, Biró, 1899.”; 2, “Sattelberg, Huon Golf.”; 3, “*Platypeltocoris planus*, n. gen. et. sp.,” [handwritten]; 4, “Typus” [red-bordered rectangle]; 5, “HOLOTIPO” [black-bordered, red rectangle]. Both Poppius (1912) and Carvalho (1981a) refer to this specimen, which is mounted abdomen down on a rectangular

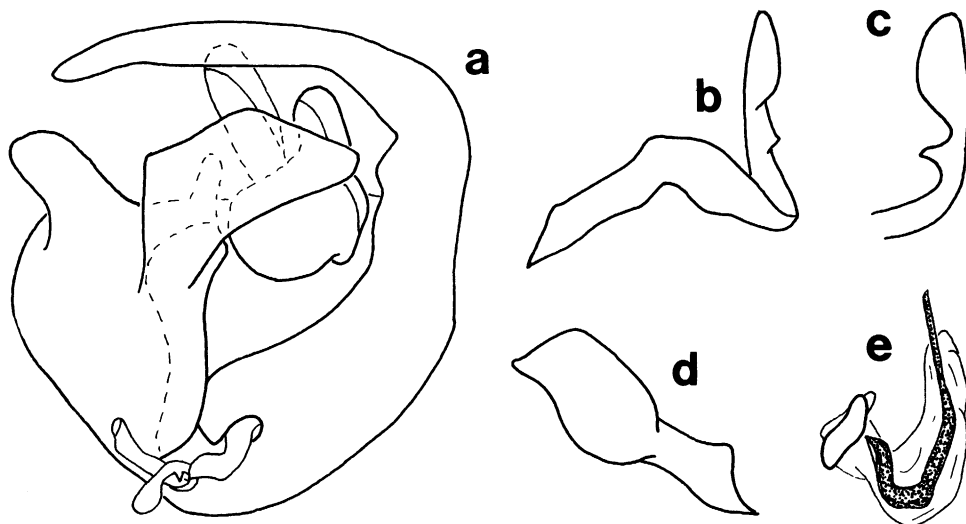


Fig. 24. Male genitalia of *Harpedona sanguinipes*. a. Genital capsule, posterior view. b, c. Left paramere. b. Lateral view. c. Posterior view of apex. d. Right paramere, lateral view. e. Vesica, phallosome, and phallobase.

card, as a male. However, close inspection of the specimen reveals that it is definitely a female.

Platypeltocoris similis was described from a single male with label data: Label 1, "N. Guinea, Biró, 1900."; 2, "Freidrich-Wilhi[elm]-hafen" [=Madang]; 3, "*Platypeltocoris similis* n. sp."; 4, "Typus" [red-bordered rectangle]; 5, "HOLOTIPO" [black-bordered, red rectangle].

The above types are referred to in original descriptions as unique specimens. They were correctly identified as holotypes by Carvalho (1981a), who is apparently responsible for the application of the "HOLOTIPO" labels. Both specimens are deposited in the HNHM.

DISCUSSION: Although Carvalho (1981a) seems correct in his synonymy of *similis* with *plana*, he confused the species with other New Guinea taxa, including the widely distributed *marginata* and the newly described species, *gressitti* and *wau*. I have examined all 11 specimens identified as *plana* by Carvalho (1981a—see specimens studied, p. 71) and only a single female from the Cyclops Mts. appears conspecific with the type. The illustrations provided by Carvalho (1981a: 70) for *plana* are not representative of the species but rather seem to be a composite of structures belonging to *gressitti* and *wau*. For example, his figure 138 (left paramere) is typical

of *wau*, while figure 139 (apex of left paramere) is representative of *gressitti*. Carvalho's dissections of specimens he identified as *plana* support this observation.

ADDITIONAL SPECIMEN: INDONESIA: **West Irian:** 1♀, Ifar, 300 m, Cyclops Mts., June 22, 1959, T. C. Maa (BISH).

Harpedona sanguinipes Distant
Figures 16, 24

Harpedona sanguinipes Distant, 1909: 441 (n. sp.); 1910b: 229–230 (descr.). Carvalho, 1981b: 3 (note).

DIAGNOSIS: Recognized by the small body size, impunctate pronotal disk; long labium—length much greater than posterior width of pronotum; antennal segment II about as long as width of head across eyes, slightly more than twice as long as antennal segment I; depressions on vertex bordering eyes much paler than surrounding region; and structure of the male genitalia.

REDESCRIPTION: MALE. Length 3.70; brownish general coloration; head, pronotum, and scutellum darker than hemelytra—reported as black and piceous, respectively in original description. **HEAD.** Width across eyes 0.78, width of vertex 0.46; vertex weakly convex with yellowish depression bordering

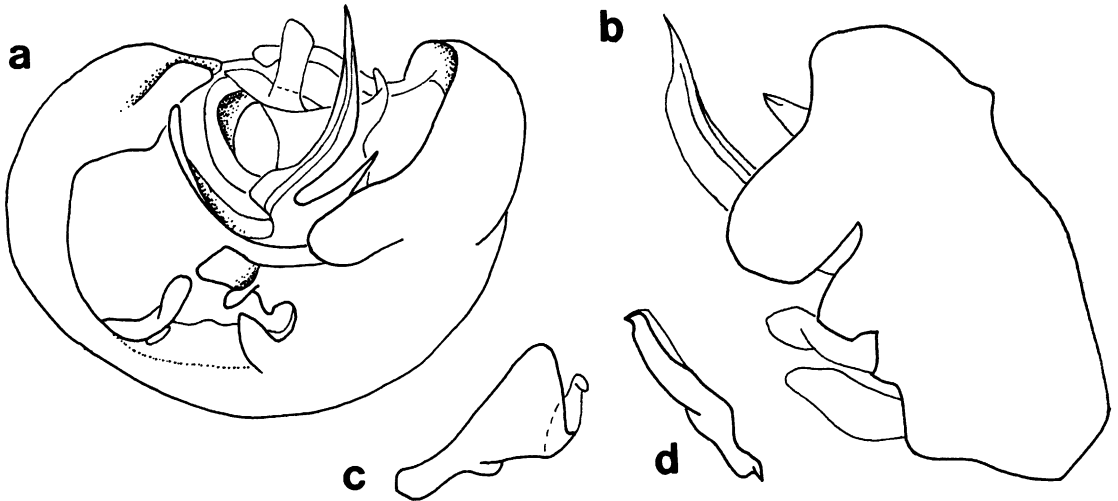


Fig. 25. Male genitalia of *Harpedona tenompokensis*. a, b. Genital capsule. a. Posterior view. b. Right lateral view. c. Left paramere, lateral view. d. Right paramere, lateral view.

inner margin of each eye; antennal segment I brownish yellow with distinct reddish tinge, segments II and III dark reddish brown, segment IV missing; length of antennal segment I 0.36, segment II 0.81; labium reaching beyond apices of metacoxae, length 1.68. PRONOTUM. Posterior width 1.08; disk finely granulate, impunctate. HEMELYTRA. Parallel-sided; cuneus about twice as long as broad; membrane fuscous. LEGS. Brownish yellow, femora lightly tinged with red (reported as sanguineous in original description). GENITALIA. Figure 24. Genital capsule with long, narrow right lateral process projecting medially to level of left margin of capsule (fig. 24a); left margin of genital capsule with prominent, dorsolateral knob, and large, dorsally directed process arising from left ventral margin of genital aperture (fig. 24a); dorsal process of capsule with broad, apically blunt distal projection (fig. 24a). FEMALE. Unknown.

DISTRIBUTION: Northeast India (fig. 16).

LECTOTYPE ♂ (new designation): Label 1, "Type, H. T." [red-bordered disk]; 2, "*Harpedona sanguinipes* Dist., type" [handwritten]; 3, "Pussumbing, Darjiling [=Darjeeling], 4700 ft, Oct. to Dec. 1906, H. H. Mann"; 4, "Distant Coll., 1911-383" (BMNH).

Harpedona tenompokensis, new species
Figures 16, 25

DIAGNOSIS: Similar to *maai* but distinguished by the almost entirely pale hemely-

tra, slightly narrower head, and structure of the male genitalia, especially the bilobed right lateral process of the genital capsule (fig. 25b) and the shape of the left paramere (fig. 25c). Distinguished from other species of *Harpedona* by the color pattern and male genitalia.

DESCRIPTION: MALE. Length 3.35; head, pronotum, and scutellum black; clavus dark reddish brown, outer half yellowish brown on basal two-thirds; corium and cuneus pale brownish yellow, except corium opposite claval apex with large fuscous spot and outer margin of embolium brownish; hemelytral membrane suffused with fuscous, more densely so inside areolar cells. HEAD. Width across eyes 0.58, width of vertex 0.34; vertex weakly convex, moderately sloping anteriorly; antennal segment I yellowish brown, slightly darker distally; antennal segments II-IV reddish brown; length of antennal segment I 0.24, segment II 0.68; labium reaching between mesocoxae, length 0.88. PRONOTUM. Posterior width 1.05; disk finely punctate. HEMELYTRA. Very weakly rounded laterally; cuneus about 1.5 times as long as broad. LEGS. Pale brownish yellow; pretarsal claws darker yellowish brown. GENITALIA. Figure 25. Left paramere with strongly produced dorsal or sensory lobe (fig. 25c). Dorsal structure of genital capsule with narrowed, cylindrical, distal process enclosing smaller tubular sclerite; surface of dorsal structure anterior of base of primary distal process with two smaller

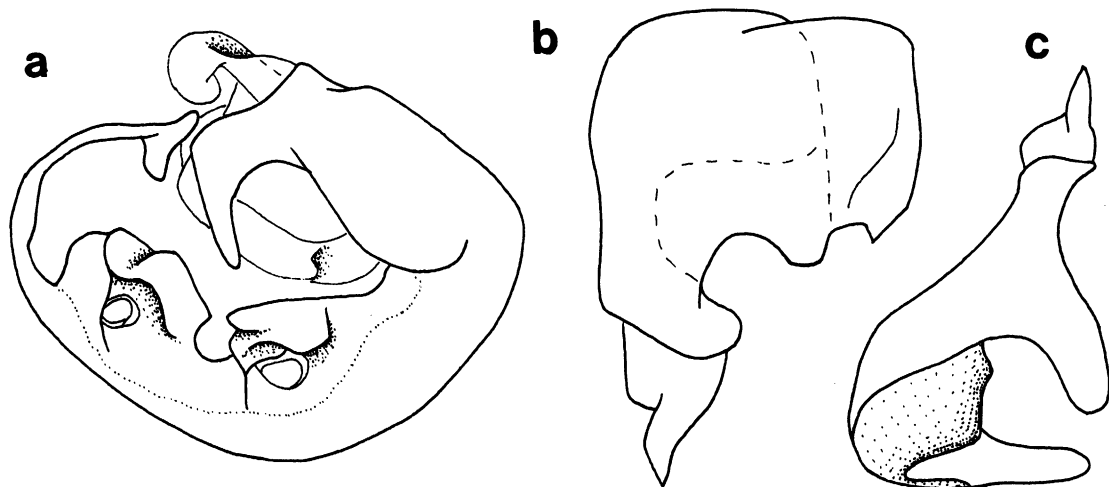


Fig. 26. Male genitalia of *Harpedona unicolor*. a. Genital capsule, posterior view. b. Right paramere, lateral view. c. Left paramere, lateral view.

accessory processes—one dorsally directed, spatulate process left of primary process and one anteriorly directed spinelike process right of primary process (fig. 25a). FEMALE. Length 3.25–3.50.

ETYMOLOGY: Named for the type locality.

DISTRIBUTION: North Borneo (fig. 16).

HOLOTYPE ♂: MALAYSIA: **Sabah**: Tenompok, 1460 m, 30 mi E of Jesselton, Oct. 17–21, 1958, T. C. Maa (BISH).

PARATYPE: 1♀, same data as holotype (BISH).

ADDITIONAL SPECIMEN: Two females that appear to be conspecific with the holotype also were examined. Both were collected near the type locality in mid-February 1959 (AMNH, BISH).

Harpedona unicolor (Poppius),
new combination
Figures 16, 26

Maurocoris unicolor Poppius, 1914: 153–154 (n. sp.).

DIAGNOSIS: Recognized by the large body size, uniformly dark brown to nearly black general coloration; impunctate pronotal disk; long labium—length much greater than posterior width of pronotum; and structure of the male genitalia, especially the robust parameres (fig. 26b, c).

REDESCRIPTION: MALE. Length 4.80–5.00; dark brown to nearly black general color-

ation; tylus, juga, lora, and underparts of body lighter brown in most specimens. HEAD. Width across eyes 0.88, width of vertex 0.52–0.54; vertex weakly convex, only narrowly visible above eyes in lateral view; frons strongly rounded, junction with tylus distinctly depressed; antennae brown or dark brown, segment I more yellowish brown especially near base; length of antennal segment I 0.39–0.40, segment II 1.18–1.21; labium reaching fourth or fifth abdominal segment, length 2.19–2.25. PRONOTUM. Posterior width 1.29–1.31; disk very finely roughened, appearing somewhat granulate. HEMELYTRA. Parallel-sided; cuneus 2.0–2.5 times as long as broad; membrane and veins dark fuscous. LEGS. Brownish yellow; last tarsal segment and pretarsal claws slightly darker. GENITALIA. Figure 26. Right lateral process of capsule strongly narrowed and sleeve-like distally, projecting medially to near middle of genital aperture (fig. 26a); dorsal process of capsule with large, posteriorly directed, wrench-shaped distal projection (fig. 26a), without inner tubular sclerite; parameres slightly more robust than for other members of genus (fig. 26b, c); phallosome with large, sac-like structure distally. FEMALE. Length 4.92–5.25.

DISTRIBUTION: Java and Malaya (fig. 16).

TYPE: *Maurocoris unicolor* was described from a single female specimen with the following label data: Label 1, “38 27”; 2, “E.

Jacobson, Wonosobo, Java, Apr. 1909"; 3, "*Maurocoris unicolor* n. gen. et sp. [handwritten], B. Poppius det."; 4, "Mus. Zool. H. fors, Spec. typ. No. 9819, *Maurocoris unicolor* B. Popp."; 5 (here added), "HOLOTYPE, *Maurocoris unicolor* Poppius, det. by G. M. Stonedahl, 1986." This specimen is in poor condition with the abdomen missing and much of the thorax damaged by dermestid or psocid feeding. However, the head, pronotal disk, and hemelytra are intact and I believe allow for positive recognition of the species. The holotype is deposited in the UZMH.

ADDITIONAL SPECIMENS: MALAYSIA: **Malaya:** *Pahang Prov.*: 3♂, 1♀, Cameron Highlands, 1520–2030 m, Jan. 4–6, 1959, L. W. Quate (AMNH, BISH).

Harpedona verticolor Carvalho

Figures 16, 27

Harpedona verticolor Carvalho, 1981a: 72, figs. 141–144 (n. sp.).

DIAGNOSIS: Recognized by the very prominent, rounded frons; large, pale spot on the vertex; short second antennal segment—length less than width of head across eyes; long labium; pronotal disk with moderately coarse punctures; and structure of the male genitalia.

REDESCRIPTION: MALE. Length 4.30; dark brown general coloration; head, except vertex, pronotum, and embolium nearly black; hemelytra with clavus and cuneus dark brown, corium and membrane mostly lighter brown. **HEAD.** Width across eyes 0.82, width of vertex 0.49; vertex nearly flat with large, brownish yellow spot medially, not produced above eyes in lateral view; frons very prominent, strongly produced beyond anterior margin of eyes in dorsal view; antennal segments I and II reddish brown, segments II and IV missing; length of antennal segment I 0.35, segment II 0.71; labium reaching beyond apices of metacoxae, length 1.81. **PRONOTUM.** Posterior width 1.26; disk with moderately coarse punctures, slightly deeper and more widely spaced than for other species of genus. **HEMELYTRA.** Weakly rounded laterally; cuneus 1.25 times as long as broad. **LEGS.** Missing; hind femora reported as "reddish (female) or black (male)," and tibiae as "pale

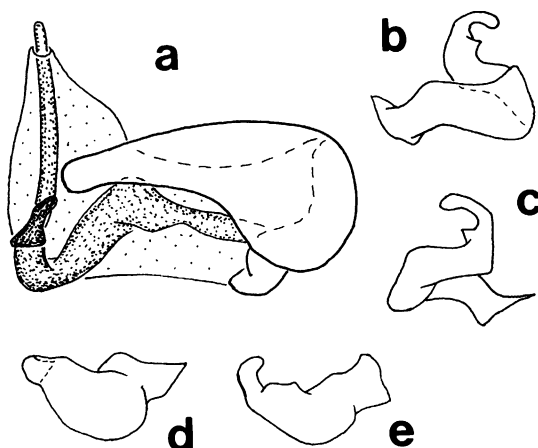


Fig. 27. Male genitalia of *Harpedona verticolor*. a. Structure of uncertain identity, possibly a portion of the dorsal process of the genital capsule. b, c. Left paramere. b. Lateral view. c. Posterior view. d, e. Right paramere. d. Lateral view. e. Dorsal view.

with two basal thirds black" in original description. **GENITALIA.** Figure 27. Vesica and all but what appears to be two pieces of the genital capsule missing from previous dissection, one piece appears to be the left lateral process of the capsule, shown in Carvalho's (1981a) figure 142, the position of the other piece is uncertain. Parameres as in figure 27b–e. **FEMALE.** Length 4.05; antennal segment II slightly thicker medially.

DISTRIBUTION: New Guinea (fig. 16).

SPECIMENS EXAMINED: INDONESIA: **West Irian:** 1♀, Japen Is., Sumberbaba, Dawai R., Nov. 1, 1962, along creek, H. Holtmann (paratype, BISH). PAPUA NEW GUINEA: **North-ern Prov.:** 1♂, Kokoda-Pitoki, 400 m, Mar. 23, 1956, J. L. Gressitt (holotype, BISH).

Harpedona wau, new species

Figures 16, 28

DIAGNOSIS: Similar to *gressitti* but distinguished by the slightly greater total length; less prominent vertex; finely punctate pronotal disk; and structure of the male genitalia, especially the strongly hooked apex of the left paramere (fig. 28d). Distinguished from other *Harpedona* species by body size, coloration, length of the labium and second antennal segment, and the male genitalia.

DESCRIPTION: MALE. Length 5.00; dark

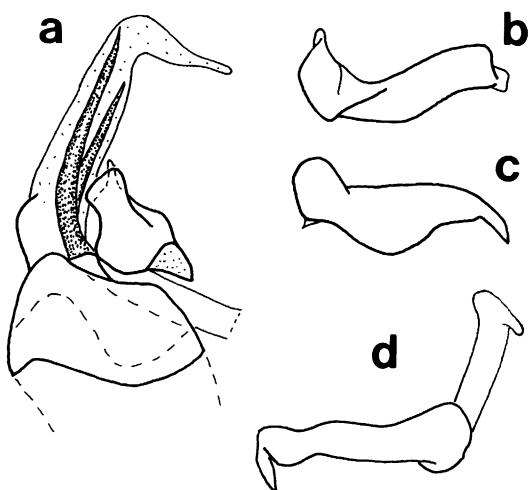


Fig. 28. Male genitalia of *Harpedona wau*. a. Dorsal process of genital capsule. b, c. Right paramere. b. Dorsal view. c. Lateral view. d. Left paramere, lateral view.

brown general coloration; head, pronotum, and scutellum nearly black. HEAD. Width across eyes 0.80, width of vertex 0.42; vertex weakly convex, only slightly produced above eyes in lateral view; antennal segments I and II dark reddish brown, segments III and IV missing; length of antennal segment I 0.39, segment II 1.07; labium reaching between mesocoxae, length 1.40. PRONOTUM. Posterior width 1.42; disk finely punctate. HEMELYTRA. Parallel-sided; cuneus about two times as long as broad; membrane and veins fuscous. LEGS. Pale brownish yellow, last tarsal segment and pretarsal claws darker yellowish brown. GENITALIA. Figure 28. Vesica and all but dorsal process of genital capsule missing from previous dissection; dorsal process of capsule (fig. 28a) very similar to that of *gressitti*; left paramere with strongly hooked apex (fig. 28d). FEMALE. Unknown.

ETYMOLOGY: Named for the type locality; a noun in apposition.

DISTRIBUTION: Papua New Guinea (fig. 16).

HOLOTYPE ♂: PAPUA NEW GUINEA: **Morobe Prov.**: Wau, 1200 m, July 8, 1961, Malaise trap, J. and M. Sedlacek (BISH).

MERTILA DISTANT

Mertila Distant, 1904a: 113 (n. gen.). Ghauri, 1975: 614 (descr.). Carvalho, 1981b: 4-5 (new comb. for *M. ternatensis* Distant).

DIAGNOSIS: Recognized by the strongly contrasting reddish orange and metallic, bluish black coloration; large eyes and broad, flattened vertex; large, triangular primary cell of hemelytral membrane; and by the structure of the male genitalia.

REDESCRIPTION: MALE. Length 5.25-7.20; width across humeral angles of pronotum 1.70-2.27; head, pronotum, scutellum, and bases of clavus and corium red or reddish orange; remainder of hemelytra shiny, metallic bluish black; dorsum shiny, pronotal disk finely punctate, hemelytra smooth or faintly wrinkled; dorsal vestiture of fine, erect, pale simple setae. HEAD. Broad; vertex flattened or slightly depressed; frons weakly convex, lateral margins bordering eyes broadly depressed; tylus weak or prominent, junction with tylus shallowly and narrowly depressed; eyes large, projecting laterally beyond anterior angles of pronotum and posteriorly to level of posterior margin of pronotal collar; antennae inserted at or near ventral margin of eyes, fossae narrowly removed from anterior margin of eyes; antennae dark reddish brown to black, segment III and sometimes base of segment I pale; segment I gradually expanded distally; segment II weakly to strongly expanded distally; segments I and II much broader than segments III and IV; all segments with long, erect, pale setae and shorter, reclining dark setae; juga and lora flattened or weakly convex, buccal cavity large, subspherical; gula obsolete; labium reaching between metacoxae, segments III and IV only half as long as segments I and II. PRONOTUM. Pronotal disk weakly convex, lateral margins strongly constricted at level of posterior margin of calli; anterior margin with weakly rounded collar about as broad as or slightly narrower than diameter of antennal segment II; calli moderately developed, posterior and anteromedial margins strongly depressed; anterior lobe of disk with flattened, subtriangular region between collar and calli; mesoscutum broadly exposed, strongly declivous; scutellum moderately convex, transversely flattened or weakly excavated anteromedially; metathoracic scent efferent system as in figure 30. HEMELYTRA. Elongate, broadest just anterior of cuneal incisure; cuneus about 1.5 times as long as broad; cuneal incisure distinct; fracture trans-

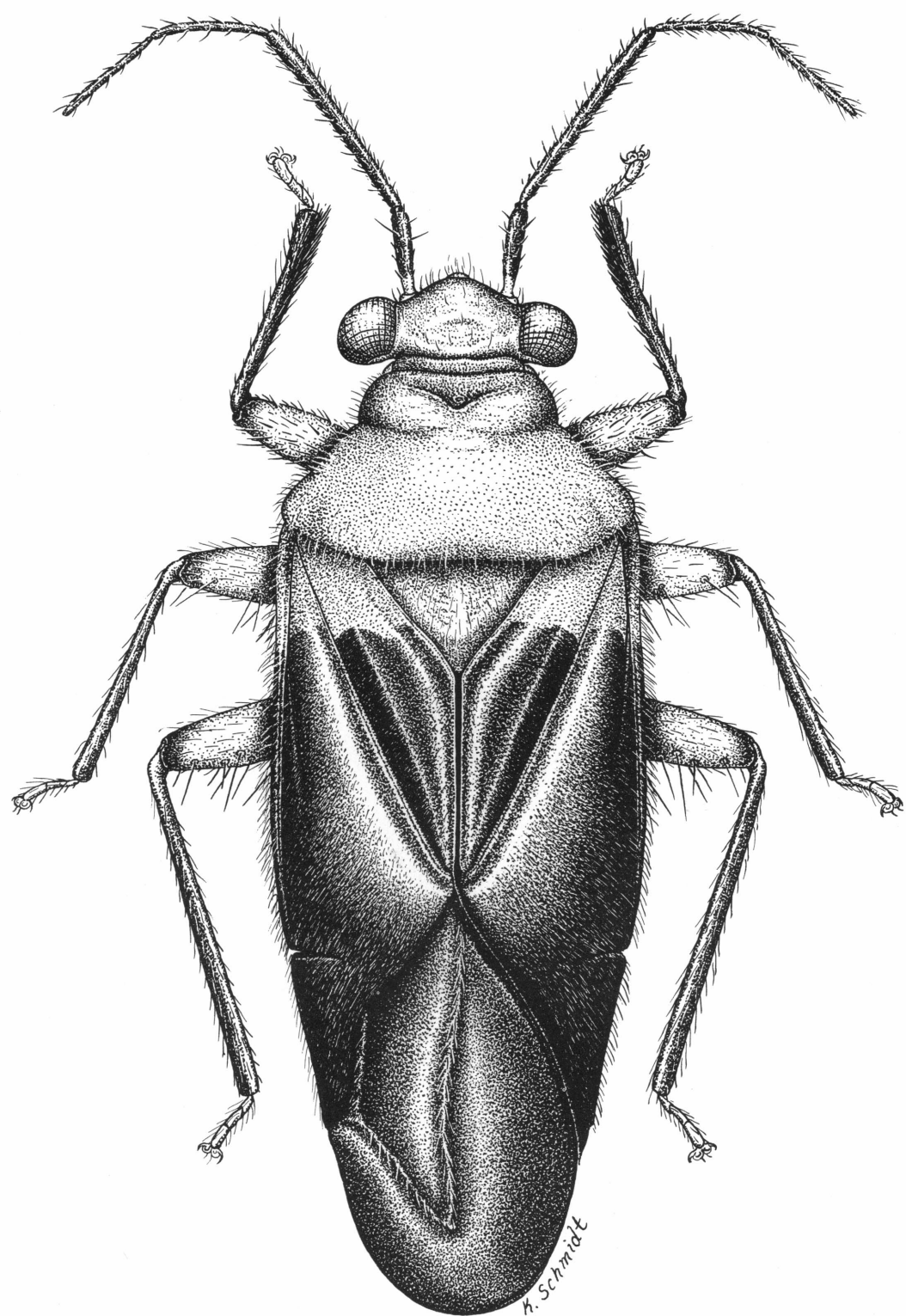
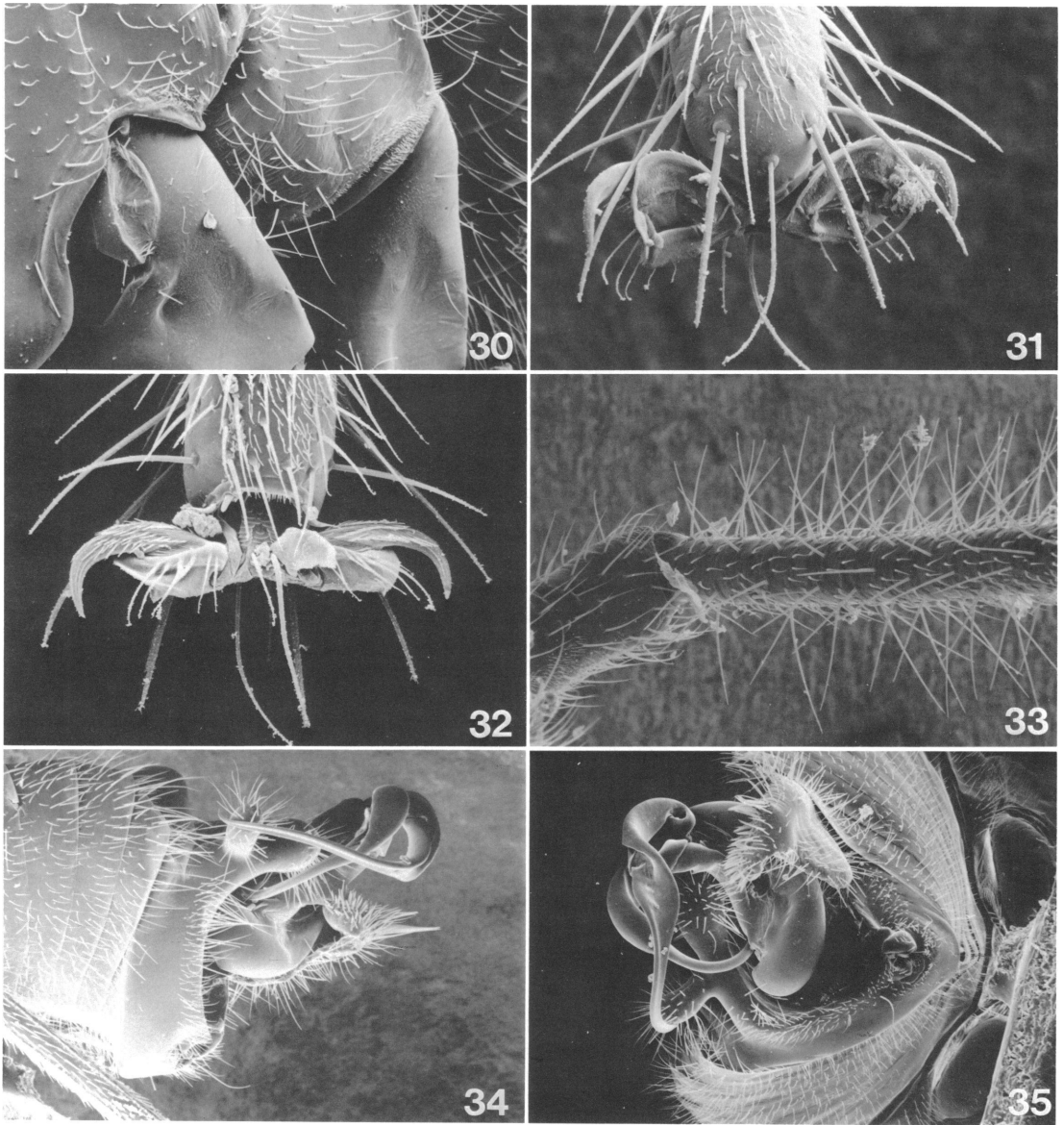


Fig. 29. *Mertila sarawak*, male.



Figs. 30–35. *Mertila malayensis*. 30. Metathoracic scent efferent system. 31, 32. Pretarsus. 31. Anterodorsal view. 32. Ventral view. 33. Basal region of antennal segment II. 34, 35. Genital capsule. 34. Left lateral view. 35. Posteroventral view.

verse; membrane fuscous, with uniformly distributed, tiny setae; primary cell of membrane large, triangular, moderately to strongly narrowed distally with rounded apex; secondary cell of membrane narrow, elongate. LEGS. Femora short, broad, slightly flattened, reddish orange, dark brown or black distally; tibiae cylindrical, protibiae flared distally; femora and tibiae with numerous, reclining to suberect, pale and dark, simple setae; tarsi

dilated distally, segments similar in length, I and II broadly overlapping; pretarsus as in figures 31 and 32. GENITALIA. Genital capsule short with large, posteriorly directed aperture; lateral margins of capsule with large, posteriorly directed, setate process, usually with smaller, rounded secondary tubercle(s); dorsomedial margin of aperture produced into two, strongly twisted and/or curled, hollow processes, tubular and strongly tapered dis-



Fig. 36. Distribution of *Mertila* species: ◆, *bhamo*; ●, *malayensis*; ▲, *sabah*; ■, *sarawak*.

tally (figs. 34, 35). Parameres and paramere sockets reduced, situated on ventromedial margin of genital aperture. Vesica very small with single, tubular sclerotized process surrounded by entirely membranous phallosome. FEMALE. Length 5.00–5.50. Similar to male in color, structure, and vestiture, except eyes slightly smaller and antennal segment II sometimes more strongly expanded distally.

TYPE SPECIES: *Mertila malayensis* Distant.

DISTRIBUTION: Burma, India, Indonesia, Malaysia, and the Philippine Islands (fig. 36).

DISCUSSION: *Mertila* belongs to the same monophyletic group as *Harpedona*, a group

which also includes *Anthropophagiotus* Kirkaldy, *Bromeliaemiris* Schumacher, *Lopidolon* Poppus, *Mertilanidea* Ghauri, *Notidius* Hsiao, and two species belonging to an undescribed genus. The defining characters of this group are described under the previous generic discussion for *Harpedona* (see also figs. 30–35). *Mertila* is distinguished from other members of the group by the reddish orange and metallic bluish black general coloration; narrow genital capsule with large V-shaped aperture; large, dorsolateral process on each side of genital capsule, processes usually with strong secondary spines or tu-

TABLE 5
Description of *Mertila* Characters^a

Antennae	
1.	0(1)—segment I uniformly fuscous. 1(1)—segment I pale basally.
2.	0(1)—segment II of male nearly linear. 1(1)—segment II of male distinctly swollen medially or distally.
3.	0(1)—length of segment II equal to or greater than width of head across eyes. 1(1)—length of segment II much shorter than width of head across eyes.
Pronotum	
4.	0(1)—propleuron with weak anteromedial carina. 1(1)—propleuron with strong anteromedial carina.
Genital aperture and processes	
5.	0(1)—ventral angle of genital aperture narrowly V-shaped; paramere sockets broadly separated from angle by ventrally directed, canallike extension of aperture. 1(1)—ventral angle of genital aperture U-shaped or broadly V-shaped; paramere sockets narrowly removed from angle.
6.	0(1)—right basal region of dorsal process with small accessory spine. 1(1)—right basal region of dorsal process with large accessory spine.
7.	0(1)—dorsodistal surface of right lateral process with short, generally distributed, bristlelike setae only. 1(1)—dorsodistal surface of right lateral process with short, bristlelike setae and dense brush of longer setae arising from tuberculate process.

^a Numbers followed by a period are coded characters at top of table 6; numbers in second column are character states (0 = plesiomorphic state, 1 = apomorphic state; see body of table 6); numbers in parentheses indicate the number of origins of the character state on the cladogram.

bercles; and dorsal process of genital capsule with two large, twisted, spinelike distal projections of similar size.

Two of the four known *Mertila* species have been collected on plants belonging to the Orchidaceae. The reported host plant genera are *Phalaenopsis*, *Renanthera*, and *Vanda*.

CLADISTIC ANALYSIS: Seven characters describe the relationships of the four *Mertila* species. Descriptions of these characters are given in table 5 and a character matrix is

TABLE 6
Character Matrix for *Mertila* Species

	1	2	3	4	5	6	7
<i>bhamo</i>	0	0	0	0	0	0	0
<i>malayensis</i>	1	1	1	1	1	1	1
<i>sabah</i>	0	1	0	1	0	1	0
<i>sarawak</i>	1	1	1	1	1	1	1

provided in table 6. A variety of taxa belonging to the following genera were used as outgroups to establish the polarity of characters in the proposed *Mertila* phylogeny: *Bromeliaemiris*, *Lopidolon*, *Mertilanidea*, *Notidius*. These four genera form a monophyletic group, with *Mertila* as its sister-group. The entire complex of five genera is recognized as monophyletic by the narrow genital capsule with large, posteroventrally directed aperture and left paramere with short, strongly recurved shaft. All outgroup taxa received the 0 state for the seven coded characters. The results of the hand-calculated cladistic analysis revealed one minimal length tree of seven steps (fig. 37).

KEY TO MALES OF *MERTILA* SPECIES

- Length of antennal segment II distinctly less than width of head across eyes; dorsodistal surface of right lateral process of genital capsule with dense brush of long, stout setae arising from tuberculate process (figs. 39a, b, 41a, b) 2
- Length of antennal segment II subequal to or greater than width of head across eyes; right lateral process of genital capsule with generally distributed bristlelike setae but lacking dense brush of longer setae (figs. 38a, b, 40a, b) 3
- Body length 5.25–5.55; keel on right ventral margin of genital aperture nearly obsolete (fig. 39a); right lateral process of genital capsule as in figure 39a, b; Java, Malaya, Singapore, and Philippine Islands *malayensis* Distant
- Body length 5.75–6.15; keel on right ventral margin of genital aperture small but noticeably developed (fig. 41a); right lateral process of genital capsule as in figure 41a, b; Sabah and Sarawak *sarawak*, new species
- Antennal segment II distinctly swollen distally; genital aperture with strong keel on right ventral margin (fig. 40a); right lateral process of genital capsule as in figure 40a, b; body

length 6.42–7.20; Sabah
*sabah*, new species
 Antennal segment II nearly linear; genital aperture without keel on right ventral margin (fig. 38a); right lateral process of genital capsule as in figure 38a, b; body length 6.25 (holotype); Burma *bhamo*, new species

***Mertila bhamo*, new species**

Figures 36, 38

DIAGNOSIS: Recognized by the broadly reddened bases of clavus and corium; length of antennal segment II nearly equal to width of head across eyes; prominent tylus; and the structure of the male genitalia (fig. 38), especially the large, spinelike tubercles on basodorsal margin and inner-medial surface of right lateral process of genital capsule (fig. 38b, c).

DESCRIPTION: MALE. Length 6.25; dark, metallic coloration on distal portion of clavus and corium not extending anteriorly beyond level of apex of scutellum, embolium pale to near level of apex of corium. **HEAD.** Width across eyes 1.40, width of vertex 0.72; tylus prominent, strongly produced basally; length of antennal segment I 0.59, basal half light reddish brown, darkening to fuscous apically, segment II 1.35, dark reddish brown, very slightly expanded distally; labium damaged distally. **PRONOTUM.** Posterior width 1.90. **HEMELYTRA.** Dark coloration on corium and clavus more brownish black. **LEGS.** Femora yellowish brown, tinged with red; tibiae brown; tarsi brown or brownish yellow. **GENITALIA.** Figure 38. **FEMALE.** Length 5.50; embolium less extensively pale than for male.

ETYMOLOGY: Named for the type locality; a noun in apposition.

DISTRIBUTION: Burma (fig. 36).

HOLOTYPE ♂: BURMA: **Bhamo District:** Bhamo, Aug. 1885, Fea (Distant collection, 1911–383) (BMNH). The above specimen was incorrectly identified as *malayensis* by W. L. Distant in the early 1900s. It also seems to be the specimen upon which Poppius (1912a) based a redescription of *malayensis*.

ADDITIONAL SPECIMEN: INDIA: 1♀, [port interception with no specific locality data], July 22, 1939, “on *Vanda*” (USNM). This specimen appears conspecific with the type (same dorsal coloration, prominent tylus, and sec-

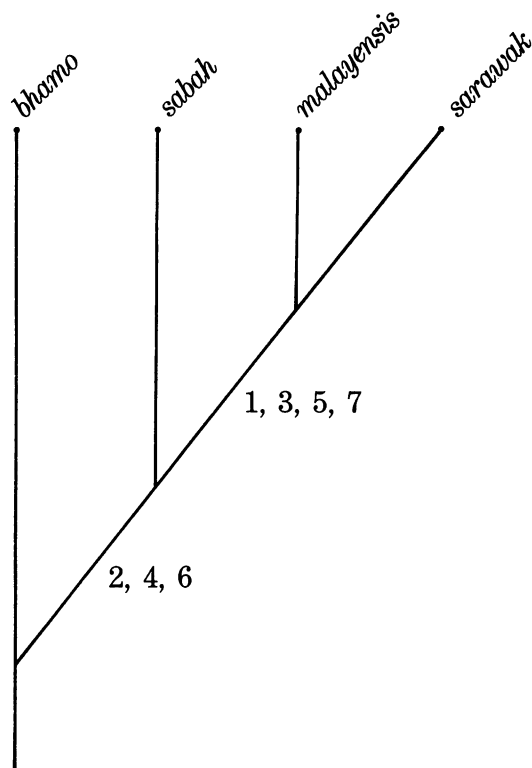


Fig. 37. Cladogram of *Mertila* species. Numbers are characters.

ond antennal segment), but a male example is needed for positive identification.

***Mertila malayensis* Distant**

Figures 30–36, 39

Mertila malayensis Distant, 1904a: 113 (n. sp.); 1904b: 472 (descr.). Poppius, 1912a: 19 (descr.). Ghauri, 1975: 614 (lectotype design.).

Mertila brevicornis Poppius, 1914: 154–155 (n. sp.). **NEW SYNONYMY.**

DIAGNOSIS: Recognized by the small size, antennal segment I pale brownish yellow basally, length of antennal segment II less than width of head across eyes, tylus moderately and evenly produced, and by the structure of the male genitalia (fig. 39).

MEASUREMENTS: Length 5.00–5.55, width across humeral angles of pronotum 1.70–1.78; width of head across eyes 1.28–1.35, width of vertex 0.68–0.70; length of antennal segment I 0.45–0.47, segment II 1.14–1.21; length of labium 1.64–1.75.

DISTRIBUTION: Java, southern Malaya,

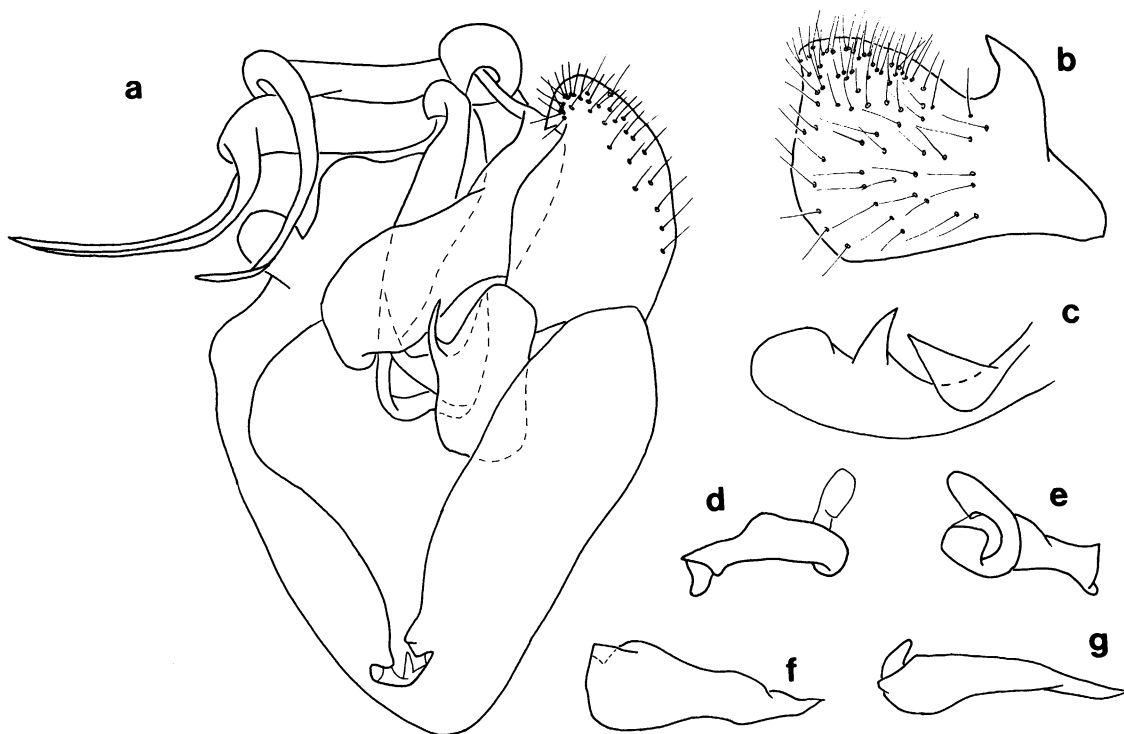


Fig. 38. Male genitalia of *Mertila bhamo*. a. Genital capsule, posterior view. b, c. Right lateral lobe of genital capsule. b. Lateral view. c. Dorsal view. d, e. Left paramere. d. Lateral view. e. Posterior view. f, g. Right paramere. f. Lateral view. g. Dorsal view.

Singapore, and Luzon, Philippine Islands (fig. 36).

DISCUSSION: Comparison of the female holotype of *brevicornis* with female paralectotypes of *malayensis* indicates that these two taxa are conspecific. I have not seen the differences in the structure of the head and antennae discussed in the original description of *brevicornis* by Poppius (1914). Since the Distant name has priority, *brevicornis* Poppius becomes a junior synonym.

Specimens of *malayensis* have been taken as port interceptions from Java, the Philippine Islands, and Singapore (no specific locality data provided) on the following members of the Orchidaceae: *Phalaenopsis amabilis* Blume, *Renanthera storeii* Reichb., and *Vanda* sp.

SPECIMENS EXAMINED: INDONESIA: **Java**: 5♂, 8♀, Salatiga, Jan. 1918, W. Roepke (BMNH, USNM); 1♀, Semarang, Apr. 1909, E. Jacobson (type of *brevicornis*, UZMH). MALAYSIA: **Malaya**: 1♂, Johore Bahru, Aug. 29, 1930,

ex. *Phalaenopsis grandiflora* Lindl. (BMNH). PHILIPPINE ISLANDS: **Luzon**: 1♂, 2♀, Manila, Mar. 4, 1940, S. R. Capco (BMNH). SINGAPORE: Lectotype ♂; 1♂, 2♀ paralectotypes (BMNH).

Mertila sabah, new species

Figures 36, 40

DIAGNOSIS: Distinguished from other known species by the large size, antennal segment II greatly expanded on distal half, length of segment II greater than width of head across eyes, and by the structure of the male genitalia (fig. 40), especially the large keel on the right ventral margin of the genital aperture (fig. 40a) and shape of the lateral processes of the genital capsule (fig. 40a, b).

DESCRIPTION: MALE. Length 6.42–7.20; dark metallic coloration on distal portion of clavus extending anteriorly to near level of middle of scutellum. HEAD. Width across eyes 1.30–1.40, width of vertex 0.66–0.70; tylus

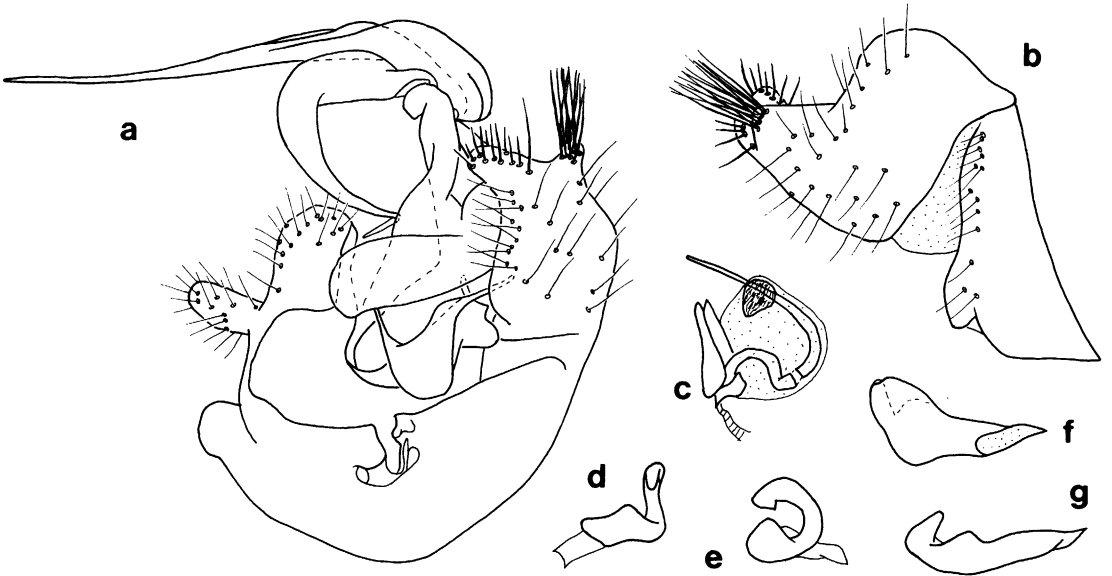


Fig. 39. Male genitalia of *Mertila malayensis*. a, b. Genital capsule. a. Posterior view. b. Right lateral view. c. Vesica, phallosome, and phallobase. d, e. Left paramere. d. Lateral view. e. Posterior view. f, g. Right paramere. f. Lateral view. g. Dorsal view.

weakly and evenly produced; length of antennal segment I 0.61–0.64, uniformly black; length of antennal segment II 1.38–1.52, distal half strongly swollen; length of labium 2.28–2.38. PRONOTUM. Posterior width 2.09–2.27. HEMELYTRA. Primary cell of membrane strongly narrowed distally. LEGS. Femora fus-

cous on distal third; tibiae black; tarsi pale yellow, segment III sometimes darker brown. GENITALIA. Figure 40. FEMALE. Unknown. ETYMOLOGY: Named for the state of Sabah in Malaysia; a noun in apposition. DISTRIBUTION: Northern Borneo (fig. 36). HOLOTYPE ♂: MALAYSIA: Sabah: Kinabalu

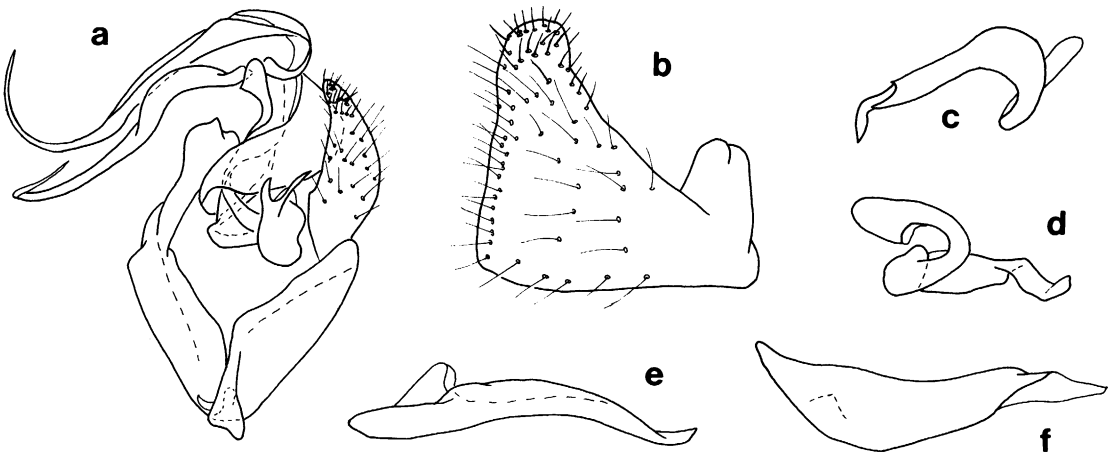


Fig. 40. Male genitalia of *Mertila sabah*. a. Genital capsule, posterior view. b. Right lateral lobe of genital capsule. c, d. Left paramere. c. Lateral view. d. Posterior view. e, f. Right paramere. e. Dorsal view. f. Lateral view.

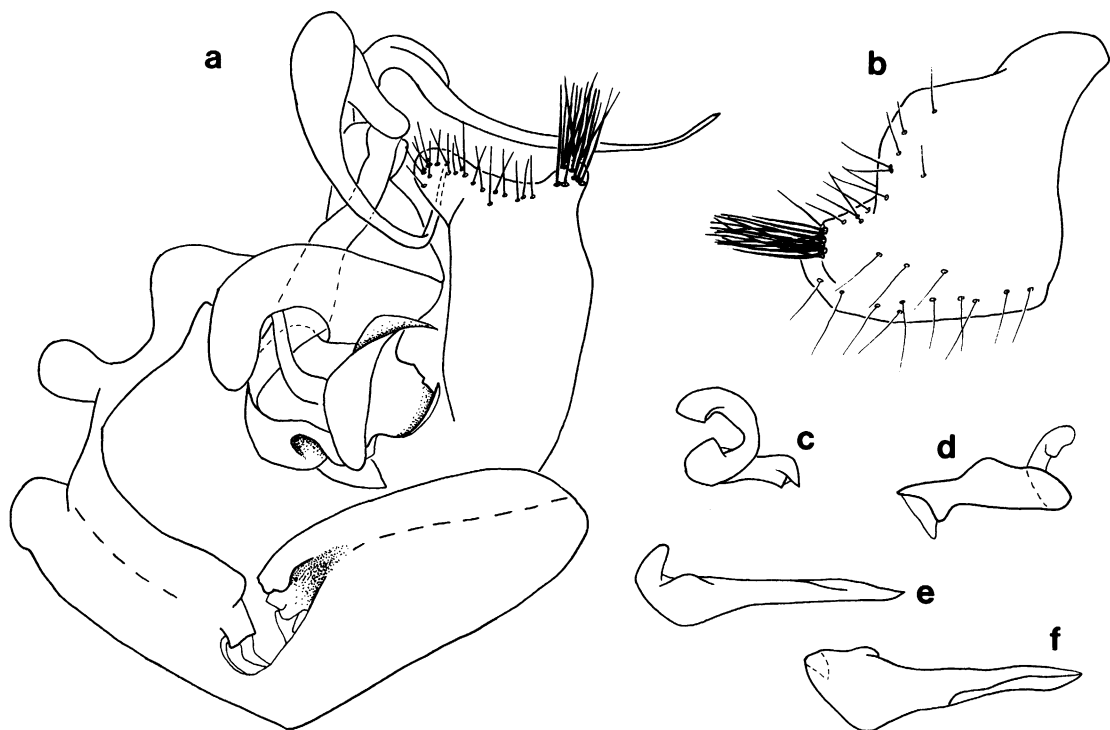


Fig. 41. Male genitalia of *Mertila sarawak*. **a**. Genital capsule, posterior view. **b**. Right lateral lobe of genital capsule. **c**, **d**. Left paramere. **c**. Posterior view. **d**. Lateral view. **e**, **f**. Right paramere. **e**. Dorsal view. **f**. Lateral view.

National Park Headquarters Area, 1560 m, Sept. 13, 1983, G. F. Hevel and W. E. Steiner (USNM).

PARATYPE: 1♂, same data as holotype (USNM).

***Mertila sarawak*, new species**

Figures 29, 36, 41

DIAGNOSIS: Similar to *malayensis* but distinguished by the slightly greater total length, longer labium, and structure of the male genitalia (fig. 41), particularly the shape of the right lateral process of the genital capsule (fig. 41a, b), and the larger keel on the right ventral margin of the genital aperture (fig. 41a). Distinguished from *bhamo* and *sabah* by the second antennal segment much shorter than width of head across eyes.

DESCRIPTION: MALE. Length 5.75–6.15; dark coloration on clavus extending anteriorly to slightly beyond apex of sculletum. **HEAD.** Width across eyes 1.40–1.50, width of vertex 0.72–0.76; tylus moderately produced; length of antennal segment I 0.49–0.52, fuscous, basal third to one-half yellowish brown;

segment II 1.19–1.33, slightly thicker distally; length of labium 1.94–1.98. **PRONOTUM.** Posterior width 1.86–2.14. **LEGS.** Metafemora fuscous, base sometimes narrowly reddened; pro- and mesofemora reddish orange, apex narrowly fuscous; tibiae uniformly black; tarsi pale yellow, segment III sometimes darker brown. **GENITALIA.** Figure 41. **FEMALE.** Unknown.

ETYMOLOGY: Named for its occurrence in Sarawak; a noun in apposition.

DISTRIBUTION: Sarawak and Northern Borneo (fig. 36).

HOLOTYPE ♂: MALAYSIA: **Sarawak:** Gunong Mulu National Park, Long Pala (Base), Site 16, 70 m, Mar. 1978, J. D. Holloway (RGS Mulu Expedition, BMNH).

PARATYPES: MALAYSIA: **Sabah:** 1♂, Forest Camp, 19 km N of Kalabakan, Oct. 19, 1962, K. J. Kuncheria (BISH). **Sarawak:** 1♂, same data as holotype (BMNH); 1 ♂, Foot of Mt. Dulit, Jct. of Tinjar and Lejok Rivers, Aug. 26, 1932, taken in light trap, B. M. Hobby and A. W. Moore (Oxford University Expedition, BMNH).

MYIOCAPSUS POPPIUS

Myiocapsus Poppius, 1914: 155–156 (n. gen.).

DIAGNOSIS: Recognized by the pale yellow or brownish yellow general coloration; short, vertical head; coarsely punctate pronotal disk with broad, moderately inflated anterior collar (fig. 42); elongate cuneus; and by the structure of the male genitalia, especially the simple, club- or racket-shaped right paramere (figs. 52g, 54e) and the spinelike process on left margin of aperture of genital capsule (fig. 46).

REDESCRIPTION: MALE. Length 3.62–4.42; width across humeral angles of pronotum 0.98–1.17; pale yellow or brownish yellow general coloration; pronotum coarsely punctate; hemelytra smooth or finely roughened; dorsal vestiture of fine, pale, simple setae. **HEAD.** Short, weakly produced and nearly vertical antieriad of antennal fossae; ventrally produced below eyes with elongate tylus, juga and lora; frons weakly convex, more strongly rounded dorsally; vertex broad, weakly rounded, with shallow transverse depression behind eyes; eyes small (occupying half or less of head height in lateral view), projecting laterally beyond anterolateral angles of pronotal disk, contiguous with anterior margin of disk; antennae inserted near level of middle of eye, fossae narrowly removed from anterior margin of eye; antennae yellowish brown to dark brown, segment I pale yellow at least basally, length about equal to width of vertex, segments II–IV similar in length, III usually slightly longer; all segments with pale semi-reclining simple setae; bucculae broad, buccal cavity small, subspherical; genae broad; gula narrow; labium reaching between meso- or metacoxae, segments I–III similar in length, segment V about half as long as others. **PRONOTUM.** Pronotal disk slightly broader than long, posterior lobe moderately convex, laterally constricted at level of calli with broad, inflated anterior collar, width of collar twice or more diameter of antennal segment I; calli small, weakly elevated, reaching lateral margins of disk, separated medially by small, circular depression; posterior margin of disk weakly concave medially; posterolateral angles broadly rounded; mesoscutum concealed; scutellum weakly elevated, flattened or slightly depressed anteromedially; metathoracic scent efferent system as in figure

43. **HEMELYTRA.** Translucent pale yellow or brownish yellow; elongate, weakly rounded to nearly straight laterally; embolium inflated; cuneus elongate, 2.5–3 times longer than broad; cuneal incisure small, fracture obsolete; membrane pale with large, elongate primary cell, apex of cell truncate or broadly rounded; membranal veins and outer margin of cuneus usually brown or dark brown. **LEGS.** Pale yellow or brownish yellow, last tarsal segment sometimes darker brown; femora slightly flattened, elongate, hind pair swollen basally; tibiae cylindrical, front pair weakly flared apically; tarsi dilated distally; pretarsus as in figure 45. **GENITALIA.** Large, subquadrate genital capsule, narrowed slightly distally, sometimes slightly compressed laterally; genital aperture large, oval-elongate, posterodorsally oriented; left margin of aperture with one or rarely two spinelike processes of variable size, well removed from paramere socket; right margin of aperture with weak to prominent skirtlike plate, sometimes bilobed. Left paramere socket slightly lower than right paramere socket in posterior view. Left paramere U-shaped; shaft short, distal region sometimes slightly to strongly expanded. Right paramere simple, club- or racket-shaped, dorsal region sometimes weakly sclerotized, inner surface excavated. Vesica with large, single sclerite, margins usually strongly inflexed, sometimes nearly tubular basally, apex sometimes with distinct medial pore; distal membranous portion of vesica well developed, multilobed, usually with one or two sclerotized rods or ribbons basally. **FEMALE.** Length 3.40–4.55. Similar to male in color, structure, and vestiture.

TYPE SPECIES: *Myiocapsus jacobsoni* Poppius.

DISTRIBUTION: Indonesia, Malaysia, and the southern Philippine Islands (fig. 47).

DISCUSSION: The relationship of *Myiocapsus* to other eccritotarsines is uncertain. In Carvalho's (1955) key to the genera of Miridae of the World, it keys out with a group of mostly unrelated genera having substylate eyes and/or a long, narrow cuneus. With the exception of *Microbryocoris* Poppius, *Myiocapsus* does not appear to be closely related to the members of this artificial group.

Based on external morphology and the structure of the male genitalia, *Myiocapsus* appears to be most closely related to a group

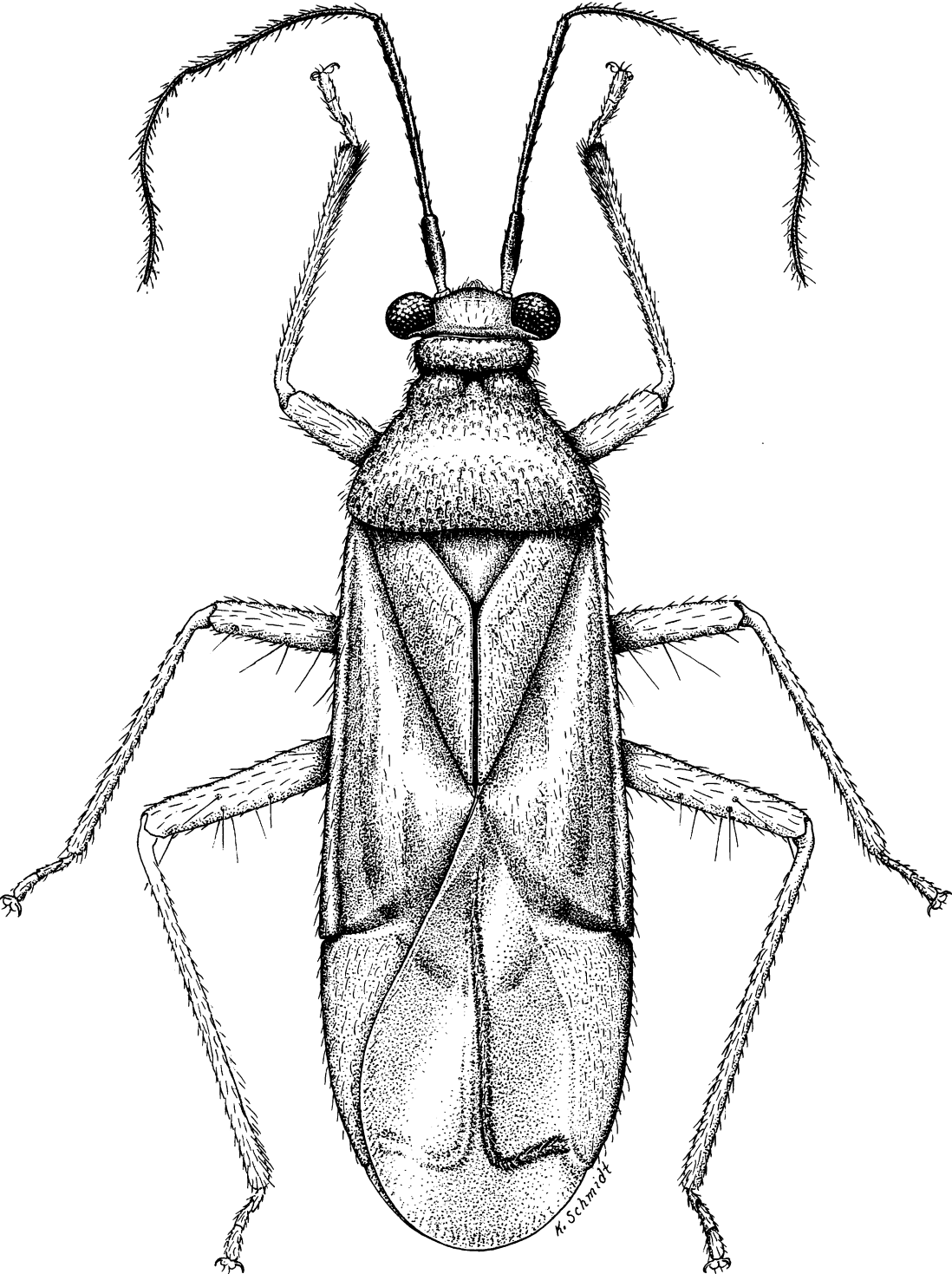
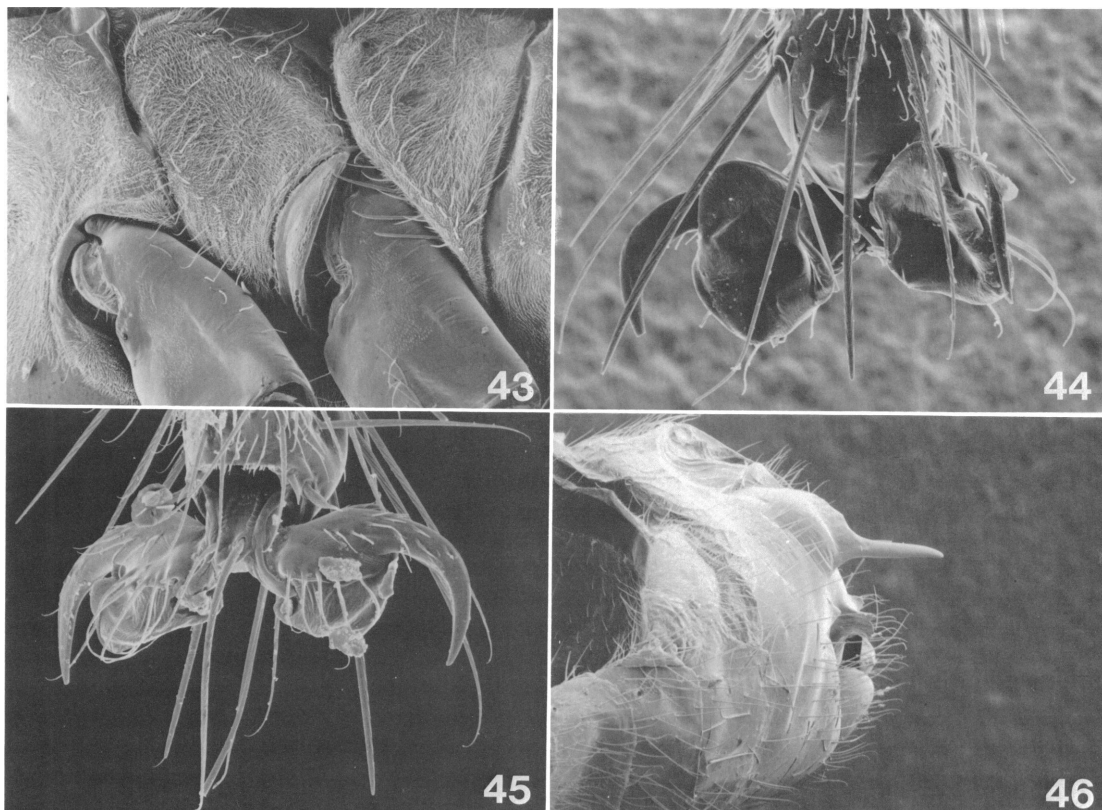


Fig. 42. *Myiocapsus perak*, male.



Figs. 43–46. *Myiocapsus mindanao*. 43. Metathoracic scent efferent system. 44, 45. Pretarsus. 44. Anterodorsal view. 45. Posteroventral view. 46. Genital capsule, left lateral view.

of genera that share the following attributes: (1) small body size, 2.5–4.6 mm; (2) moderately to strongly inflated posterior lobe of pronotal disk that projects over the base of the scutellum; (3) paramere sockets with prominent, sometimes inflated, process on inner margin; and (4) short, broad right paramere. The genera possessing these features are *Eofurius* Poppius, *Ernestinus* Distant, *Microbryocoris* Poppius, *Palaeofurius* Poppius, and *Stylopomiris* Stonedahl. Within this group of genera, *Myiocapsus* is distinguished by the following apomorphic characters: (1) head short in lateral view, strongly produced below eyes with elongate juga and lora, and weakly convex, nearly vertical frons; (2) pale yellow or brownish yellow general coloration, without dark markings; (3) left margin of genital capsule of male with strong, spinelike process; and (4) apical membranous portion

of vesica multilobed, with one or two narrow sclerites basally.

The host plant associations of *Myiocapsus* species are not known.

CLADISTIC ANALYSIS: Nine characters of the male genitalia were employed to describe the relationships of the *Myiocapsus* species. Descriptions of these characters are given in table 7 and a character matrix is provided in table 8. The monotypic genus *Microbryocoris* was selected as the outgroup to establish character polarities based on its close external and genitalic similarity to *Myiocapsus*. This genus differs from *Myiocapsus* by the smaller body size (2.6 mm), darkened head and thorax, structure of the parameres, and distal membranous portion of vesica without basal sclerotization. The results of the hand-calculated analysis revealed one minimal length tree of 14 steps (fig. 48).



Fig. 47. Distribution of *Myiocapsus* species: ●, *balasonensis*; ○, *bilobatus*; ■, *jacobsoni*; ★, *maai*; ●, *mindanao*; ▲, *perak*; ◆, *sabah*; ▲, *tawau*; ◆, *tjibodas*.

KEY TO MALES OF
MYIOCAPSUS SPECIES

- | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| 1. Vesical sclerite with medial pore apically . . . 2 | |
| 2. Vesical sclerite without pore apically 6 | |
| 2. Left margin of aperture of genital capsule with strong, spinelike process (figs. 49a, 50c, 53a, 55a) 3 | |
| Left margin of genital aperture without spine-like process (fig. 52a); North Borneo | |
| <i>maai</i> , new species | |
| 3. Left margin of genital aperture with small, bifurcate secondary spine subtending primary | |
| process (fig. 55a); North Borneo | |
| <i>sabah</i> , new species | |
| Left margin of genital aperture without secondary spine 4 | |
| 4. Spinelike process on left margin of genital aperture short, about as broad as long (fig. 49a); right margin of genital aperture evenly produced (fig. 49b); Mindanao, Philippine Islands | |
| <i>balasonensis</i> , new species | |
| Spinelike process on left margin of genital aperture elongate, much longer than broad (figs. 50a, 53a); right margin of genital aperture strongly bilobed (figs. 50b, 53b) 5 | |

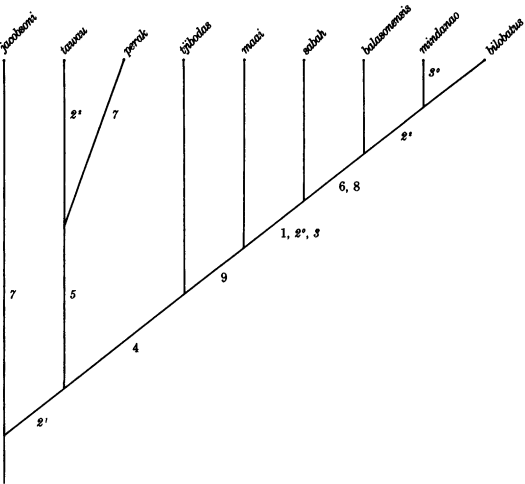


Fig. 48. Cladogram of *Myiocapsus* species. Numbers are characters; homoplasious characters given in italics (parallelism) and italics with superscript zero (reversal).

5. Left spinelike process of genital aperture rising above dorsal margin of genital capsule (fig. 50a); dorsalmost lobe on right margin of genital aperture large, subquadrate (fig. 50b); North Borneo *bilobatus*, new species
Left spinelike process of genital aperture not rising above dorsal margin of genital capsule (fig. 53a); dorsalmost lobe on right margin of genital aperture smaller, rounded (fig. 53b); Mindanao, Philippine Islands
 *mindanao*, new species
6. Body length 3.62–3.92; distolateral margins of vesical sclerite finely serrate (figs. 51c, 54f) 7
Body length 4.20–4.32; distolateral margins of vesical sclerite entire, without fine serrations (figs. 56f, 57f) 8
7. Shaft of left paramere strongly expanded distally (fig. 54c, d); right paramere strongly convex dorsally, apical half subspherical in lateral view (fig. 54e); Malaya
 *perak*, new species
Shaft of left paramere only weakly expanded distally (fig. 51e, f); right paramere weakly convex dorsally, more elongate in lateral view (fig. 51g); Java *jacobsoni* Poppius
8. Vesical sclerite small (length 0.38–0.41), abruptly expanded medially (fig. 57f); parameres as in figure 57c–e; Java
 *tjibodas*, new species
Vesical sclerite large (length 0.60–0.64), gradually expanded medially (fig. 56f); parameres as in figure 56c–e; North Borneo
 *tawau*, new species

TABLE 7
Description of *Myiocapsus* Characters^a

Genital capsule and aperture	
1.	0(1)—left lateral margin of aperture without or with small, spinelike process usually midway between paramere socket and dorsal margin of capsule. 1(1)—left lateral margin of aperture with large spinelike process near dorsal margin of capsule.
2.	0(2)—right lateral margin of aperture with well-developed skirtlike plate of nearly uniform width. 1(1)—right lateral margin of aperture with strongly bilobed skirtlike plate. 2(2)—right lateral margin of aperture with smaller, broadly rounded skirtlike plate.
3.	0(2)—aperture broadly visible in dorsal view. 1(1)—aperture only narrowly visible in dorsal view.
4.	0(1)—inner margin of left paramere socket strongly produced. 1(1)—inner margin of left paramere socket not or only slightly produced.
Right paramere	
5.	0(1)—flattened or weakly convex dorsally in lateral view. 1(2)—strongly convex dorsally in lateral view.
Vesicle sclerite	
6.	0(1)—expanded medially or distally. 1(1)—uniformly narrow or slightly narrowed distally.
7.	0(1)—margins entire. 1(1)—margins serrate.
8.	0(1)—inner distal surface unmodified or with simple, transverse ridge. 1(1)—inner distal surface with transverse ridge bearing central groove.
9.	0(1)—apex without medial pore. 1(1)—apex with medial pore.

^a Numbers followed by a period are coded characters at top of table 8; numbers in second column are character states (0 = plesiomorphic state, 1, 2 = apomorphic state; see body of table 8); numbers in parentheses indicate the number of origins of the character state on the cladogram.

Myiocapsus balasonensis, new species
Figures 47, 49

DIAGNOSIS: Recognized by the short, broad, spinelike process on left margin of genital aperture (fig. 49a); prominent, evenly produced, skirtlike plate on right margin of genital aperture (fig. 49b); and narrow vesical

TABLE 8
Character Matrix for *Myiocapsus* Species

	1	2	3	4	5	6	7	8	9
<i>balasonensis</i>	1	0	1	1	0	1	0	1	1
<i>bilobatus</i>	1	2	1	1	0	1	0	1	1
<i>jacobsoni</i>	0	0	0	0	0	0	1	0	0
<i>maai</i>	0	1	0	1	0	0	0	0	1
<i>mindanao</i>	1	2	0	1	0	1	0	1	1
<i>perak</i>	0	1	0	0	1	0	1	0	0
<i>sabah</i>	1	0	1	1	0	0	0	0	1
<i>tawau</i>	0	2	0	0	1	0	0	0	0
<i>tjibodas</i>	0	1	0	1	0	0	0	0	0

sclerite with unexpanded margins and small, medial pore apically (fig. 49f, g).

DESCRIPTION: MALE. Length unknown (hemelytra damaged); yellowish white general coloration. HEAD. Width across eyes 0.68, width of vertex 0.31; antennal segments II–IV dark brown, segment I pale with brownish tinge apically; length of antennal segment I 0.30, segment II 0.75. PRONOTUM. Posterior width 0.99. HEMELYTRA. Damaged—see female description. LEGS. Pale yellow, apices of tibiae brownish yellow. GENITALIA. Figure 49. Vesical sclerite narrow, lateral margins unexpanded, apex with small medial pore bordered basally by narrow, transversely grooved ridge (fig. 49f, g). FEMALE. Length 3.65;

hemelytra nearly parallel-sided; outer margin of cuneus pale, yellowish brown distally; veins of hemelytral membrane lightly tinged with brown.

ETYMOLOGY: Named for the type locality.

DISTRIBUTION: Mindanao, Philippine Islands (fig. 47).

HOLOTYPE ♂: PHILIPPINE ISLANDS: **Mindanao**: Misamis Oriental Prov., Balason, Apr. 4–5, 1960, W. Torrevillas (BISH).

PARATYPE: 1♀, same data as holotype (BISH).

Myiocapsus bilobatus, new species
Figures 47, 50

DIAGNOSIS: Recognized by the long, spine-like process on left lateral margin of genital aperture, process rising above dorsal margin of genital capsule (fig. 50a); strongly bilobed right margin of genital aperture with large, subquadrate dorsalmost lobe (fig. 50b); and vesical sclerite with small, elongate, medial pore apically (fig. 50f, g).

DESCRIPTION: MALE. Length 4.42; brownish yellow general coloration, head more yellowish brown. HEAD. Width across eyes 0.72, width of vertex 0.33; antennae missing. PRONOTUM. Posterior width 1.12. HEMELYTRA. Weakly rounded laterally; outer margin of cuneus and veins of membrane dark brown.

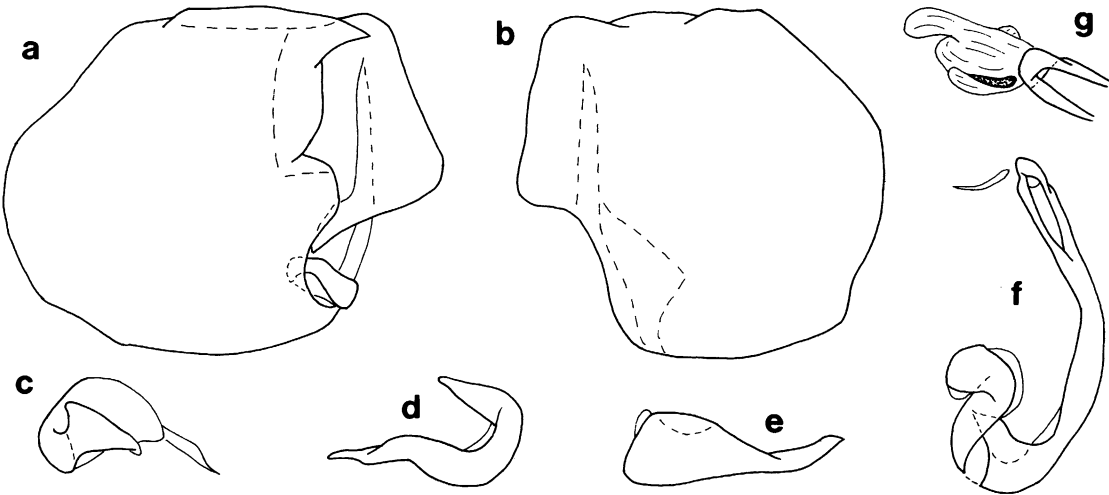


Fig. 49. Male genitalia of *Myiocapsus balasonensis*. a, b. Genital capsule. a. Left lateral view. b. Right lateral view. c, d. Left paramere. c. Apical view. d. Dorsal view. e. Right paramere, lateral view. f. Vesica with phallobase. g. Apex of vesica.

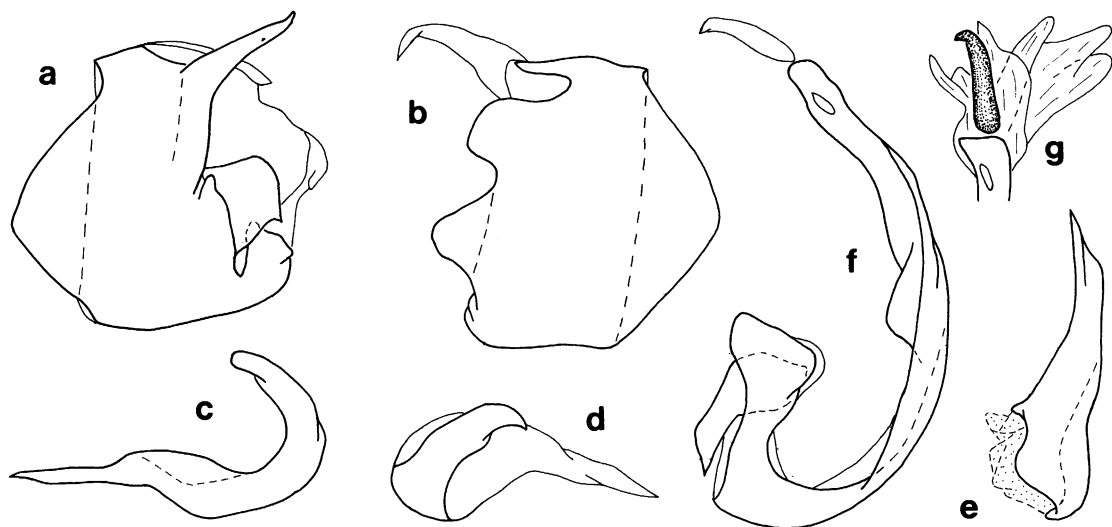


Fig. 50. Male genitalia of *Myiocapsus bilobatus*. a, b. Genital capsule. a. Left lateral view. b. Right lateral view. c, d. Left paramere. c. Dorsal view. d. Apical view. e. Right paramere, lateral view. f. Vesica with phallobase. g. Apex of vesica.

LEGS. Brownish yellow, tarsi and apices of femora slightly darker. GENITALIA. Figure 50. Vesical sclerite as described for *balasonensis* except apical pore more elongate. FEMALE. Unknown.

ETYMOLOGY: From the Latin, *bi* (two) and *lobatus* (lobed), referring to the strongly bilobed right lateral margin of the genital aperture.

DISTRIBUTION: North Borneo (fig. 47).

HOLOTYPE ♂: MALAYSIA: **Sabah**: Tenompok, 1460 m, 48 km E of Jesselton, Jan. 26–31, 1959, T. C. Maa (BISH).

Myiocapsus jacobsoni Poppius
Figures 47, 51

Myiocapsus jacobsoni Poppius, 1914: 157 (n. sp.).

DIAGNOSIS: Recognized by the small body size; shaft of left paramere weakly expanded distally with narrow, fingerlike apex (fig. 51e, f); and distolateral margins of vesical sclerite finely serrate, apex without medial pore (fig. 51c, d).

REDESCRIPTION: MALE: Length 3.80–3.92; pale yellow general coloration. HEAD. Width across eyes 0.68–0.71, width of vertex 0.31–0.34; antennae dark brown, segment I pale basally; length of antennal segment I 0.29–0.32, segment II 0.80–0.81. PRONOTUM. Posterior width 1.02–1.10. HEMELYTRA. Outer

margin of cuneus and membranous veins brown. LEGS. Pale yellow, apices of tibiae and last tarsal segment brownish yellow. GENITALIA. Figure 51. Vesical sclerite slightly expanded distally with finely serrate lateral margins, apex without medial pore; left margin of genital aperture with small, spinelike process; right margin of aperture with weak, evenly produced, skirtlike plate; left paramere weakly expanded distally, with narrow fingerlike apex; right paramere weakly convex dorsally. FEMALE. Length 3.52–3.88.

DISTRIBUTION: Java (fig. 47).

LECTOTYPE ♂ (new designation): Label 1, “37 95”; 2, “E. Jacobson, Goenoeng Oengaran, Java, Oct. 1909”; 3, “Mus. Zool. H: fors, Spec. typ. No. 9822, *Myiocapsus jacobsoni* B. Popp.” (UZMH).

PARALECTOTYPES: 1♂, “37 96” and 1♀, “37 99”; other data as for lectotype except with UZMH Type 9823 and 9821, respectively. Female specimen with addition label as follows: “*Myiocapsus jacobsoni* n. gen. et sp. [handwritten], B. Poppius det.” Three additional specimens from the type locality are indicated in the original description and may be deposited in the Rijksmuseum van Natuurlijke Historie, Leiden.

ADDITIONAL SPECIMENS: INDONESIA: **Java**: 1♂, Bali Is., Bedugul, Mar. 24, 1965, J. Winkler (BISH); 1♀, Pelaboean Ratoe (=Pelabu-

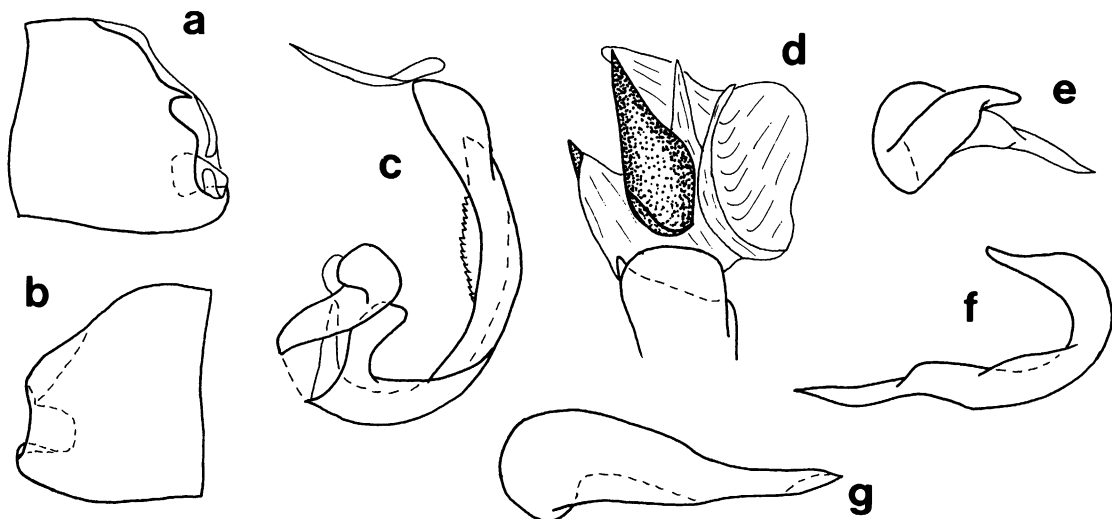


Fig. 51. Male genitalia of *Myiocapsus jacobsoni*. a, b. Genital capsule. a. Left lateral view. b. Right lateral view. c. Vesica with phallobase. d. Apex of vesica. e, f. Left paramere. e. Apical view. f. Dorsal view. g. Right paramere, lateral view.

hanrato), Oct. 16, 1909, Bryant and Palmer (USNM).

***Myiocapsus maai*, new species**

Figures 47, 52

DIAGNOSIS: Recognized by the left margin of genital aperture without spinelike process (fig. 52a) and vesical sclerite with large, apical pore (fig. 52c, d). Right margin of genital aperture with prominent, bilobed lateral plate (fig. 52b).

DESCRIPTION: MALE. Length 4.33, pale brownish yellow general coloration. **HEAD.** Width across eyes 0.65, width of vertex 0.26; antennal segments II–IV dark brown, segment I yellowish brown, distal half darker brown; length of antennal segment I 0.30, segment II 0.85. **PRONOTUM.** Posterior width 1.06. **HEMELYTRA.** Nearly parallel-sided; margins of cuneus and membranal veins brown. **LEGS.** Femora brownish yellow; tibiae, especially distally, and tarsi darker yellowish brown. **GENITALIA.** Figure 52. **FE-MALE.** Unknown.

ETYMOLOGY: Named for T. C. Maa.

DISTRIBUTION: North Borneo (fig. 47).

HOLOTYPE ♂: MALAYSIA: **Sabah:** Tenompok, 1460 m, 48 km E of Jesselton, Jan. 26–31, 1959, T. C. Maa (BISH).

***Myiocapsus mindanao*, new species**

Figures 43–47, 53

DIAGNOSIS: Similar to *bilobatus* but distinguished by the smaller, rounded, dorsalmost lobe on right marginal plate of genital aperture (fig. 53b); spinelike process on left lateral margin of genital aperture not rising above dorsal margin of capsule (fig. 53a); and without ventral notch at apex of left paramere (fig. 53d). Distinguished from other species of *Myiocapsus* by the very long left lateral process of genital capsule, without subtending secondary spine, and vesical sclerite with small medial pore apically (fig. 53f, g).

DESCRIPTION: MALE. Length 4.17–4.55; pale brownish yellow general coloration, head sometimes darker yellowish brown. **HEAD.** Width across eyes 0.71–0.72, width of vertex 0.31–0.35; antennal segments II–IV brown or dark brown, segment I pale, usually tinged with brown distally; length of antennal segment I 0.32–0.35, segment II 0.82–0.84. **PRONOTUM.** Posterior width 1.04–1.14. **HEMELYTRA.** Nearly parallel-sided; outer margin of cuneus and membranal veins pale or sometimes lightly marked with brown. **LEGS.** Pale yellow; apices of tibiae and last tarsal segment usually darker brownish yellow. **GENITALIA.** Figure 53. Right lateral margin of genital aperture strongly bilobed; ves-

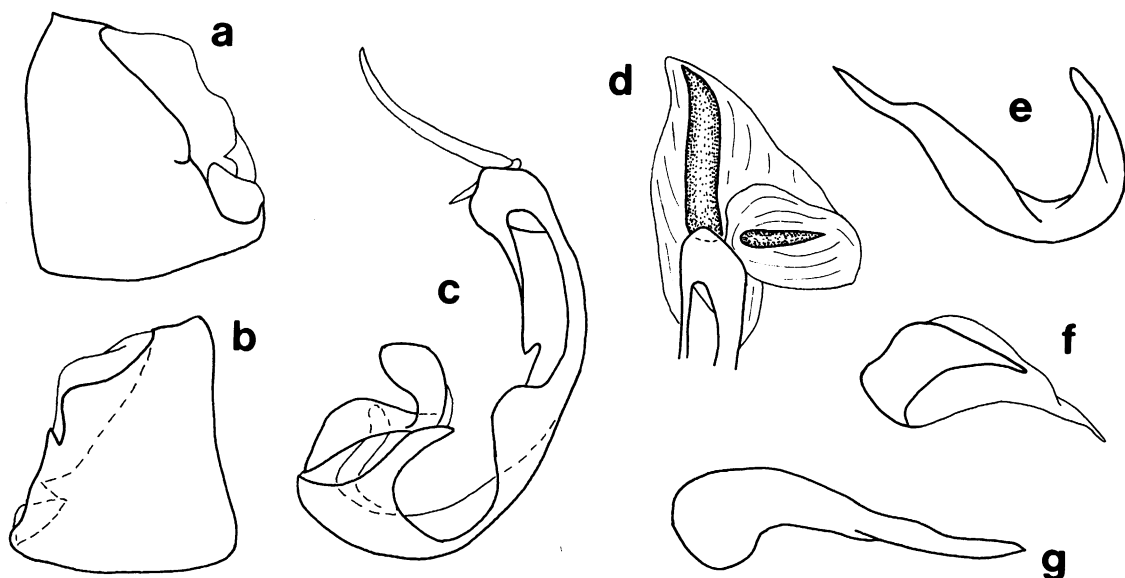


Fig. 52. Male genitalia of *Myiocapsus maai*. a, b. Genital capsule. a. Left lateral view. b. Right lateral view. c. Vesica with phallobase. d. Apex of vesica. e, f. Left paramere. e. Dorsal view. f. Apical view. g. Right paramere, lateral view.

ical sclerite as described for *balasonensis*. FEMALE. Length 4.00–4.62.

ETYMOLOGY: Named for its occurrence on Mindanao, Philippine Islands.

DISTRIBUTION: Mindanao, Philippine Islands (fig. 47).

HOLOTYPE ♂: PHILIPPINE ISLANDS: **Mindanao**: Mt. Apo, Galog River, 6000 ft, Sept. 8, C. S. Clagg (AMNH).

PARATYPES: PHILIPPINE ISLANDS: **Mindanao**: 21♂, 21♀, same data as holotype (AMNH, BMNH); 2♂, same data as holotype except Nov. 1 (AMNH); 1♀, Mt. Apo, Todaya Plateau, 5000 ft, Sept. 2, C. S. Clagg (AMNH).

ADDITIONAL SPECIMENS: PHILIPPINE ISLANDS: **Mindanao**: 17♂, 6♀, Mt. Katanglad, 1250 m, Bukidnon, Oct. 26, 1959, L. W. Quate (BISH); 4♂, 8♀, Mt. View Colleges, Ma-

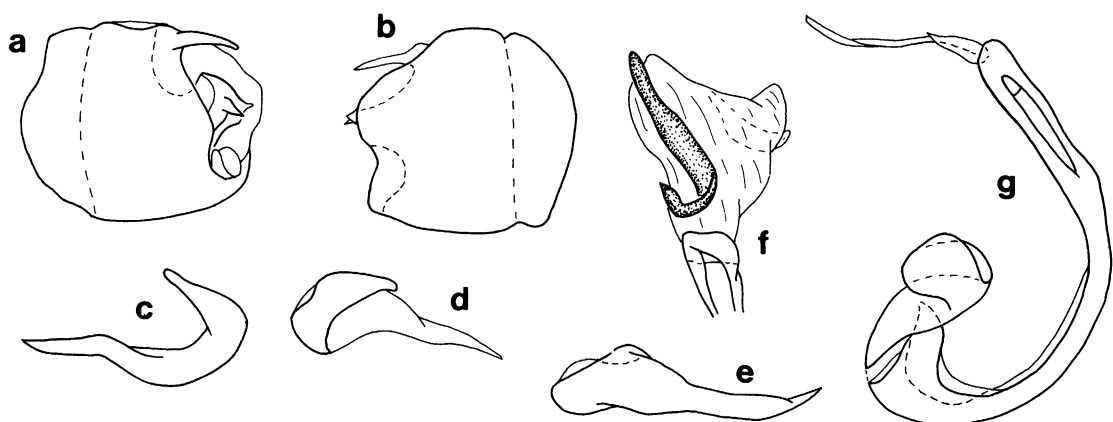


Fig. 53. Male genitalia of *Myiocapsus mindanao*. a, b. Genital capsule. a. Left lateral view. b. Right lateral view. c, d. Left paramere. c. Dorsal view. d. Apical view. e. Right paramere, lateral view. f. Apex of vesica. g. Vesica with phallobase.

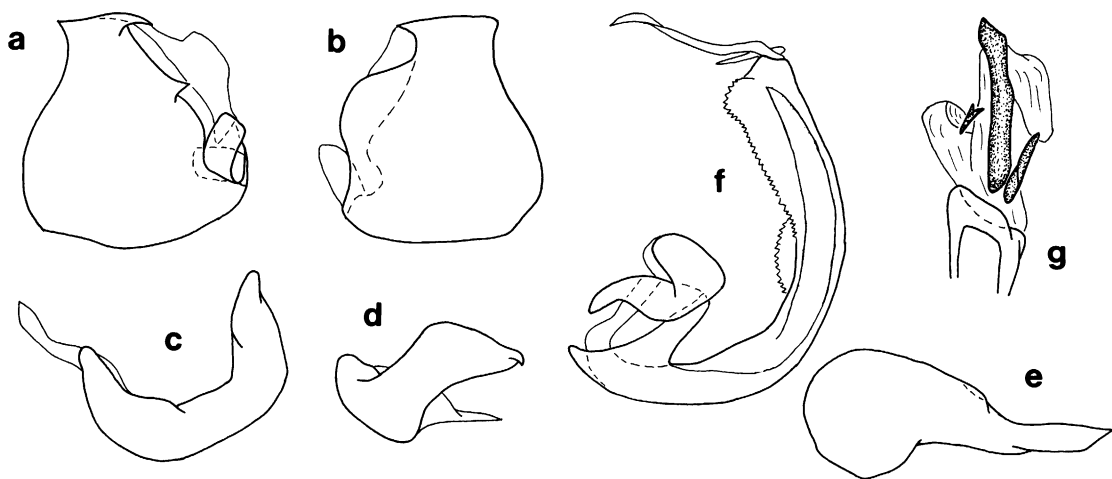


Fig. 54. Male genitalia of *Myiocapsus perak*. a, b. Genital capsule. a. Left lateral view. b. Right lateral view. c, d. Left paramere. c. Dorsal view. d. Apical view. e. Right paramere, lateral view. f. Vesica with phallobase. g. Apex of vesica.

lignon River, above 2500 ft, 15 km NW of Valencia, Bukidnon, April 22–23, 1968, D. E. Hardy (BISH); 1♀, Davao Prov., Lawa, May 5, C. S. Clagg (AMNH); 1♀, Lanao Prov., Butig Mts., 24 km NE of Butig, 1080 m, June 21, 1958, along stream, H. E. Milliron (BISH).

DISCUSSION: The specimens examined from Mt. Katanglad and Mt. View Colleges differ from the Mt. Apo specimens (holotype and paratypes) by having the pronotal collar slightly less swollen; longer labium, length 1.00–1.04 compared to 0.89–0.92; and male genitalia with weakly bilobed right lateral margin of genital aperture, dorsalmost lobe nearly obsolete, and slightly smaller spinelike process on left lateral margin of aperture. Other external and genitalic features of specimens from the three populations are indistinguishable. Although the northern populations may represent a distinct species based on the characters described above, they are treated here as conspecific with the Mt. Apo holotype until more information is available regarding character variation and distribution.

***Myiocapsus perak*, new species**

Figures 42, 47, 54

DIAGNOSIS: Similar to *jacobsoni* in body size and structure of the male genitalia, but distinguished by the large, racket-shaped right paramere (fig. 54e) and shaft of left paramere

strongly expanded distally (fig. 54c, d). Distinguished from other species of the genus by the small body size and vesical sclerite with finely serrate distolateral margins (fig. 54f).

DESCRIPTION: MALE. Length 3.62–3.95; pale grayish yellow general coloration. **HEAD.** Width across eyes 0.66–0.68, width of vertex 0.29–0.31; antennae brown or dark brown, basal half to two-thirds of segment I pale; length of antennal segment I 0.27–0.29, segment II 0.74–0.79. **PRONOTUM.** Posterior width 0.98–1.06. **HEMELYTRA.** Weakly rounded laterally; outer margin of cuneus and membranal veins brown or dark brown. **LEGS.** Pale brownish yellow; apices of tibiae and last tarsal segment usually slightly darker. **GENITALIA.** Figure 54. As described for *jacobsoni* except as noted in diagnosis above. **FEMALE.** Length 3.30–3.92.

ETYMOLOGY: Named for its occurrence in the Perak Province, Malaya.

DISTRIBUTION: Malaya, Malaysia (fig. 47).

HOLOTYPE ♂: MALAYSIA: **Malaya:** Perak Prov., Mt. Brichang, Cameron Highlands, Jan. 2–7, 1959, L. W. Quate (BISH).

PARATYPES: MALAYSIA: **Malaya:** Perak Prov.: 6♂, 15♀, same data as holotype (BISH); 1♂, Batang Padang Jor, 4000 ft, Oct. 11, 1923 [G. L. Jamang], H. M. Pendlebury (BMNH).

ADDITIONAL SPECIMEN: MALAYSIA: **Malaya:** 1♂, Pahang Prov., Gua 'Che Yatim, Dec. 16–17, 1958, T. C. Maa (BISH).

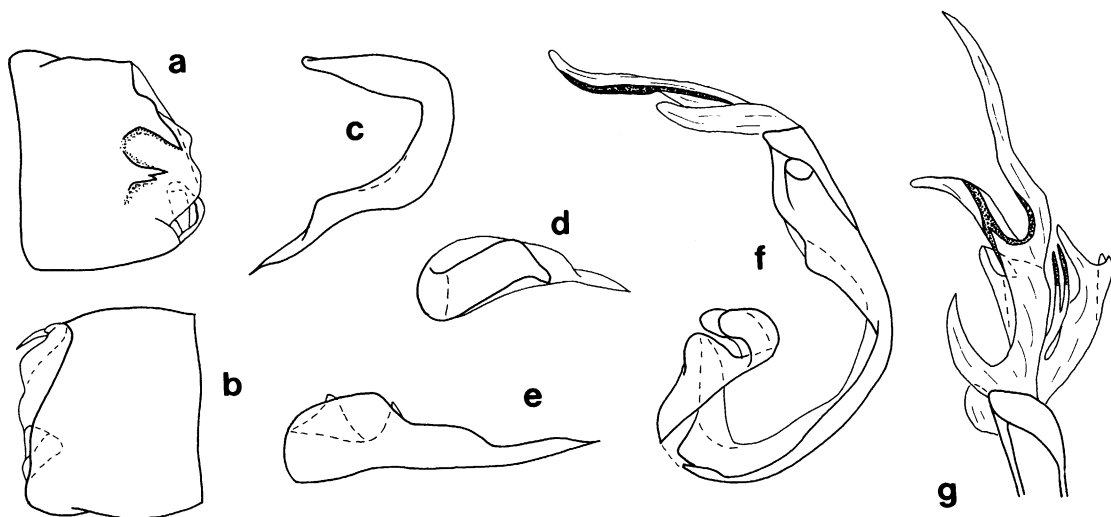


Fig. 55. Male genitalia of *Myiocapsus sabah*. a, b. Genital capsule. a. Left lateral view. b. Right lateral view. c, d. Left paramere. c. Dorsal view. d. Apical view. e. Right paramere, lateral view. f. Vesica with phallobase. g. Apex of vesica.

***Myiocapsus sabah*, new species**

Figures 47, 55

DIAGNOSIS: Recognized by the large, ventrally directed, spinelike process on left lateral margin of genital aperture, subtended by smaller, secondary spine with bifurcate apex

(fig. 55a), and vesical sclerite with large, apical pore (fig. 55f).

DESCRIPTION: MALE. Length 4.15–4.30; brownish yellow general coloration. **HEAD.** Width across eyes 0.69–0.71, width of vertex 0.34; antennal segments II–IV dark brown, segment I yellowish brown; length of anten-

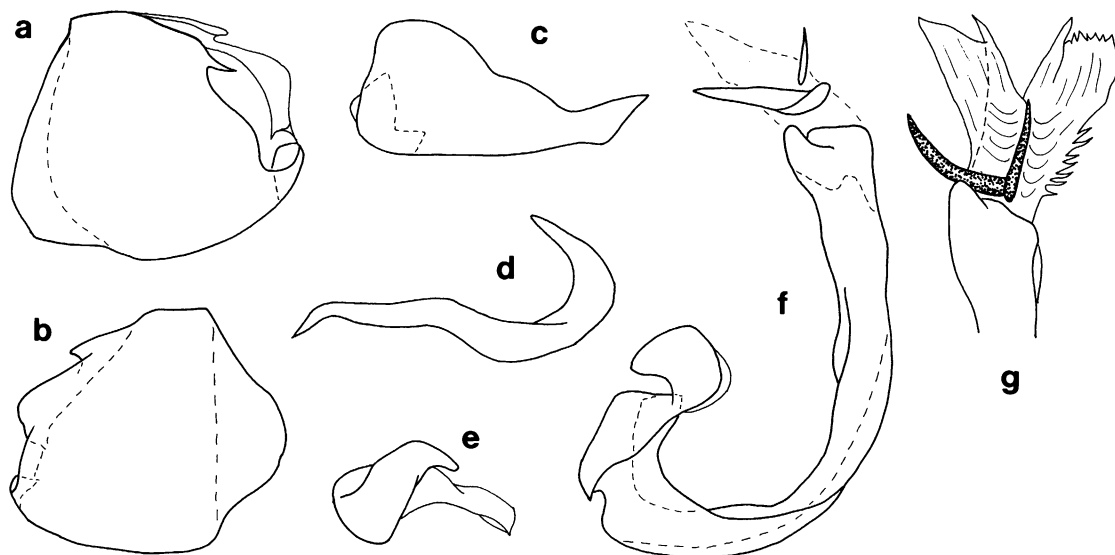


Fig. 56. Male genitalia of *Myiocapsus tawau*. a, b. Genital capsule. a. Left lateral view. b. Right lateral view. c. Right paramere, lateral view. d, e. Left paramere. d. Dorsal view. e. Apical view. f. Vesica with phallobase. g. Apex of vesica.

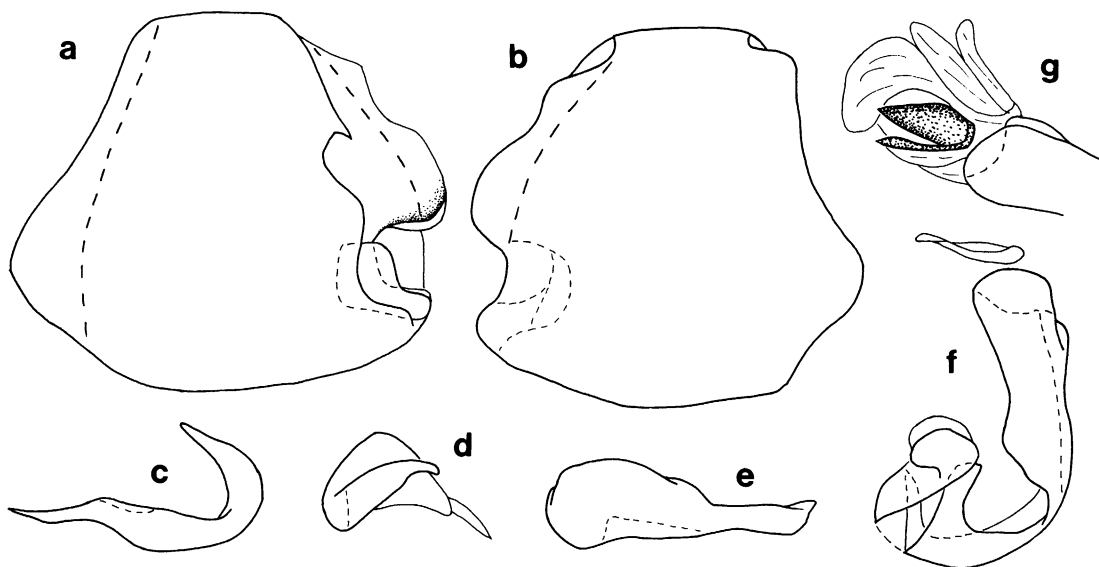


Fig. 57. Male genitalia of *Myiocapsus tjibodas*. a, b. Genital capsule. a. Left lateral view. b. Right lateral view. c, d. Left paramere. c. Dorsal view. d. Apical view. e. Right paramere, lateral view. f. Vesica with phallobase. g. Apex of vesica.

nal segment I 0.34, segment II 0.85. PRONOTUM. Posterior width 1.04–1.11. HEMELYTRA. Weakly rounded laterally; outer margin of cuneus and membranal veins brown. LEGS. Pale yellow; apices of tibiae and last tarsal segment brownish yellow. GENITALIA. Figure 55. FEMALE. Unknown.

ETYMOLOGY: Named for its occurrence in Sabah, Malaysia.

DISTRIBUTION: North Borneo (fig. 47).

HOLOTYPE ♂: MALAYSIA: **Sabah**: Tenompok, Feb. 13, 1959, T. C. Maa (BISH).

PARATYPE: MALAYSIA: **Sabah**: 1♂, Ranau, Feb. 22–25, 1959, T. C. Maa (BISH).

***Myiocapsus tawau*, new species**

Figures 47, 56

DIAGNOSIS: Recognized by the large body size; elongate vesical sclerite (length 0.60–0.64) with gradually expanded, nonserrate distolateral margins, and apex without medial pore (fig. 56f); and broad right paramere with strongly convex dorsal surface (fig. 56c).

DESCRIPTION: MALE. Length 4.20–4.28; pale brownish yellow general coloration. HEAD. Width across eyes 0.78–0.81, width of vertex 0.36–0.38; antennal segments II–IV brown or dark brown, segment II sometimes lighter yellowish brown, segment I uniformly

pale brownish yellow; length of antennal segment I 0.31–0.35, segment II 0.89–0.99. PRONOTUM. Posterior width 1.09–1.17. HEMELYTRA. Weakly rounded laterally, outer margin of cuneus and membranal veins lightly to moderately darkened with brown or fuscous. LEGS. Pale yellow; tibiae and last tarsal segment more brownish yellow. GENITALIA. Figure 56. FEMALE. Length 4.20–4.62.

ETYMOLOGY: Named for the type locality; a noun in apposition.

DISTRIBUTION: Tawau District, North Borneo (fig. 47).

HOLOTYPE ♂: MALAYSIA: **Sabah**: Tawau, Quoin Hill Cocoa Res. Sta. (primary forest), Nov. 6, 1962, V. Hirashima (BISH).

PARATYPES: MALAYSIA: **Sabah**: 1♂, 1♀, same data as holotype (BISH); 1♀, Kalabakan (primary forest), Tawau District, Nov. 8–15, 1958, T. C. Maa (BISH); 1♀, Nov. 7–10 and 1♂, 1♀, Nov. 21, 1962, Forest Camp, 19 km North of Kalabakan, 60 m, malaise trap, V. Hirashima (BISH).

***Myiocapsus tjibodas*, new species**

Figures 47, 57

DIAGNOSIS: Similar to *tawau* but distinguished by the much smaller vesical sclerite (length 0.38–0.41) with abrupt medial ex-

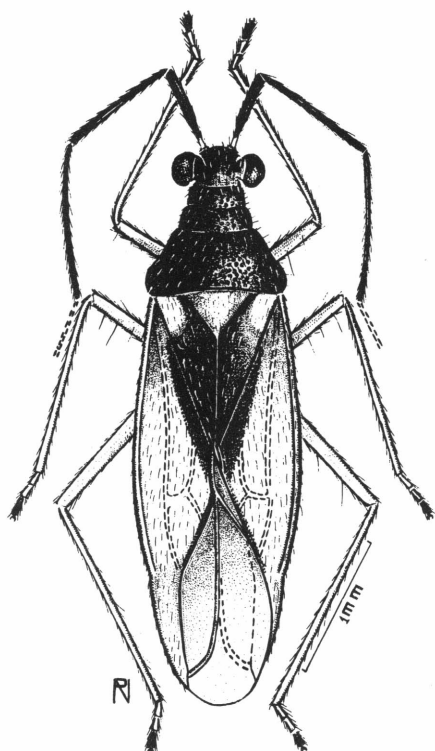


Fig. 58. *Prodromus nigrus*, holotype male (from Carvalho 1981a).

pansion (fig. 57f); right paramere with weakly convex dorsal surface (fig. 57e); and left paramere with narrower shaft and apex (fig. 57c, d). Distinguished from other species of the genus by the large body size and small vesical sclerite without apical pore or marginal serrations.

DESCRIPTION: MALE. Length 4.30–4.32; brownish yellow general coloration. **HEAD.** Yellowish brown; width across eyes 0.72–0.73, width of vertex 0.34–0.35; antennae brown or dark brown, basal third of segment I pale yellow; length of antennal segment I 0.35–0.37, segment II 0.80–0.82. **PRONOTUM.** Posterior width 1.09–1.10. **HEMELYTRA.** Weakly rounded laterally; outer margin of cuneus brown or dark brown; membranous veins sometimes tinged with brown. **LEGS.** Pale yellow or brownish yellow; apices of tibiae and last tarsal segment slightly darker yellowish brown. **GENITALIA.** Figure 57. **FE-MALE.** Length 4.18–4.25.

ETYMOLOGY: Named for the type locality; a noun in apposition.

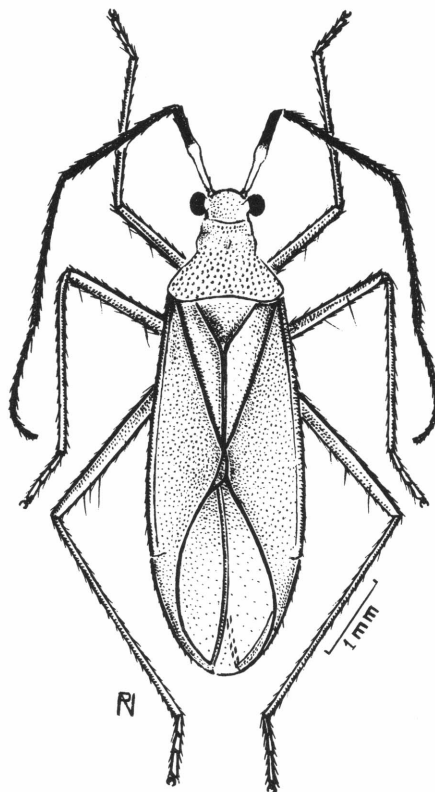


Fig. 59. *Prodromus oculatus*, lectotype male (from Carvalho, 1981a).

DISTRIBUTION: Java (fig. 47).

HOLOTYPE ♂: INDONESIA: **Java:** Tjibodas, Mt. Gede, 6000 ft, Aug. 13, 1909, Bryant and Palmer (USNM).

PARATYPES: INDONESIA: **Java:** 2♀, same data as holotype (USNM); 1♂, same data as holotype, except no month and day of collection given and altitude of 4500 ft (USNM).

PRODROMUS DISTANT

Prodromus Distant, 1904b: 436–437, fig. 282 (n. gen.). Poppius, 1912b: 196 (descr.). Odhiambo, 1962: 250–252 (descr.).

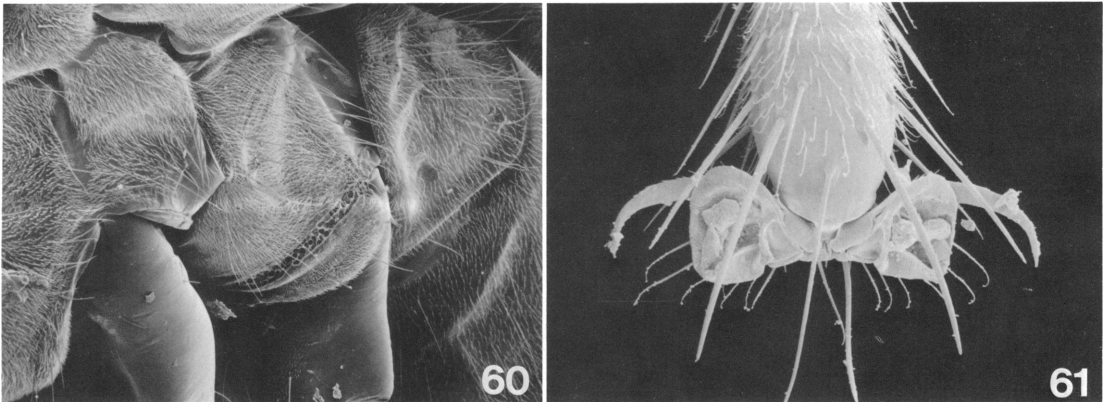
Prodromopsis Poppius, 1911: 4–6 (n. gen.). Carvalho, 1948: 191 (as syn. of *Sinervus* Stål). Odhiambo, 1962: 248 (as syn. of *Prodromus*). Carvalho, 1981a: 80–81 (reinstated as valid gen. taxon). **RENEWED SYNONYMY.**

DIAGNOSIS: Recognized by the elongate body form; short, vertical head with distinct neck (figs. 58, 59); prominent, substylate or pedunculate eyes; vertex with shallow, lon-

gitudinal sulcus medially; basal $\frac{1}{4}$ – $\frac{1}{2}$ of antennal segment I strongly narrowed; elongate cuneus; long, thin legs; and by the structure of the male genitalia, especially the elongate right paramere, prominent, curved tergal processes of genital capsule supporting rectal tissue, and form of the vesica.

REDESCRIPTION: MALE. Length 3.35–6.00; width across humeral angles of pronotum 0.75–1.28; pale yellow or brownish yellow general coloration, sometimes tinged with green and/or with limited to extensive brown or fuscous suffusion. Pronotum coarsely punctate, collar and calli usually more finely punctate; hemelytra roughened and/or finely punctate; dorsal vestiture of fine, pale, simple setae. **HEAD.** Short, longitudinally compressed, with short neck posteriad of eyes, not produced anteriorly of antennal fossae, strongly produced ventrally below eyes, usually with elongate tylus, juga, and lora; frons weakly convex, or straight and nearly vertical ventrad of antennal fossae, more strongly rounded dorsally; base of tylus indistinct to moderately prominent; vertex depressed with shallow, longitudinal sulcus medially; eyes occupying about one-third of height of head in lateral view, substylate to strongly pedunculate, slightly to strongly elevated above vertex, somewhat kidney-shaped in dorsal view, projecting laterally beyond anterolateral angles of pronotal disk, sometimes extending posteriorly to anterior margin of disk, but well separated from it dorsally; antennae inserted at or above ventral margin of eye, fossae narrowly removed from anterior margin of eye; antennae cylindrical, with short, simple setae, coloration variable, brownish red to black, segments I and II often pale yellow or brownish yellow at least in part, segment I $\frac{1}{2}$ – $\frac{2}{3}$ as long as segment II, basal $\frac{1}{4}$ – $\frac{1}{2}$ strongly narrowed, segments II and III similar in length, segment IV usually considerably longer than II and III; bucculae short, buccal cavity subspherical; genae very broad; gula well developed; labium reaching between procoxae or onto mesosternum, rarely between mesocoxae. **PRONOTUM.** Pronotal disk slightly broader than long, narrowed anteriorly and noticeably constricted laterally at level of posterior margin of calli and at junction of collar and calli; posterior lobe weakly to moderately convex; anterior mar-

gin of disk with broad, flattened or weakly rounded collar, poorly demarcated dorsally, width of collar greater than diameter of antennal segment I; calli weakly elevated, reaching lateral margins of disk, separated medially by small depression; posterior margin of disk weakly to moderately concave medially, posterolateral angles broadly rounded; mesoscutum concealed or narrowly exposed; scutellum weakly elevated, broadly depressed anteromedially; metathoracic scent efferent system as in figure 60. **HEMELYTRA.** Translucent to semiopaque; elongate with weakly rounded to nearly straight lateral margins; embolium inflated; cuneus elongate, curved, three times or more as long as broad, often terminating at or near apex of membrane; cuneal incisure shallow, fracture weak; membrane pale with elongate primary cell; membranal vein weakly to strongly curved distally, sometimes nearly straight. **LEGS.** Femora elongate, slightly flattened, hind pair narrowed medially, sometimes nearly cylindrical; tibiae cylindrical, front pair weakly flared apically; tarsi dilated distally; pretarsus as in figure 61. **GENITALIA.** Genital capsule subquadrate, narrowed slightly distally; genital aperture large, oval-elongate, posterodorsally oriented, lateral margin above each paramere socket with prominent, posteriorly directed process, usually tapered and inflected distally, sometimes with secondary spine(s) or tubercle(s) near apex; processes supporting rectal tissue, apices sometimes nearly contiguous or overlapping medially in dorsal view. Paramere sockets symmetrically situated or sometimes with right socket slightly dorsad. Left paramere U-shaped with well-developed arm and shaft; sensory lobe weakly elevated, broadly rounded; shaft usually expanded slightly distally; apex acute. Right paramere relatively large, shape variable, nearly straight or more commonly strongly and broadly curved, sometimes with long tapered shaft reaching to or beyond base of left paramere. Vesica with large, single, weakly curved sclerite, margins inflected, right margin sometimes noticeably expanded medially or distally, apex broadly rounded, sometimes with spinelike process of variable size; distal membranous portion of vesica a single elongate sac, surface of sac sometimes with tiny, weakly sclerotized spinules, especially near



Figs. 60, 61. *Prodromus oculatus*. 60. Metathoracic scent efferent system. 61. Pretarsus.

base, distal ¼–½ of sac strongly reflexed, held against basal portion by thin surrounding membranous phallotheca; reflexed portion of vesical sac usually with pair of sclerotized straps laterally. FEMALE. Length 3.30–5.95. Similar to male in color, structure, and vestiture, except eyes usually less prominent.

TYPE SPECIES: *Prodromus subflavus* Dis-

tant. Type of junior synonym: *Prodromus cuneatus* Distant.

DISTRIBUTION: Widely distributed in the Indo-Pacific region from tropical west Africa to the Solomon Islands (figs. 62–65).

DISCUSSION: *Prodromus* is most closely related to the African genus *Duducoris* Odhiambo, the two genera having in com-

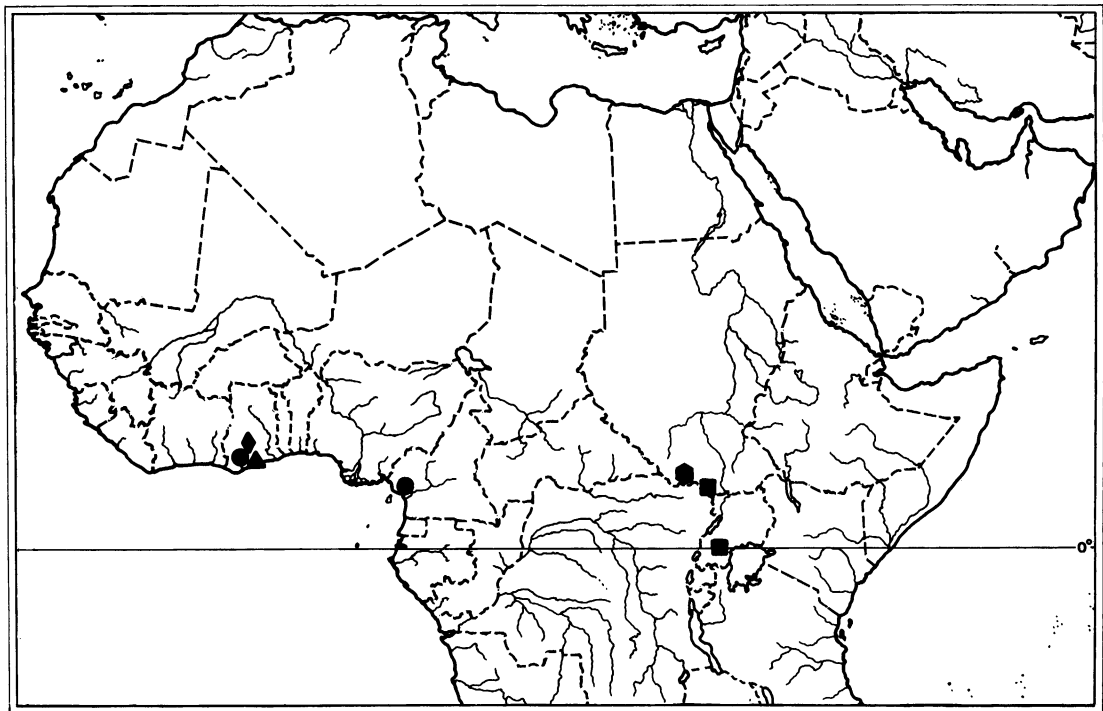


Fig. 62. Distribution of *Prodromus* species: ●, *ibbaicus*; ■, *kawandanus*; ●, *melanonotus*; ▲, *tafoensis*; ◆, *thaliae*.

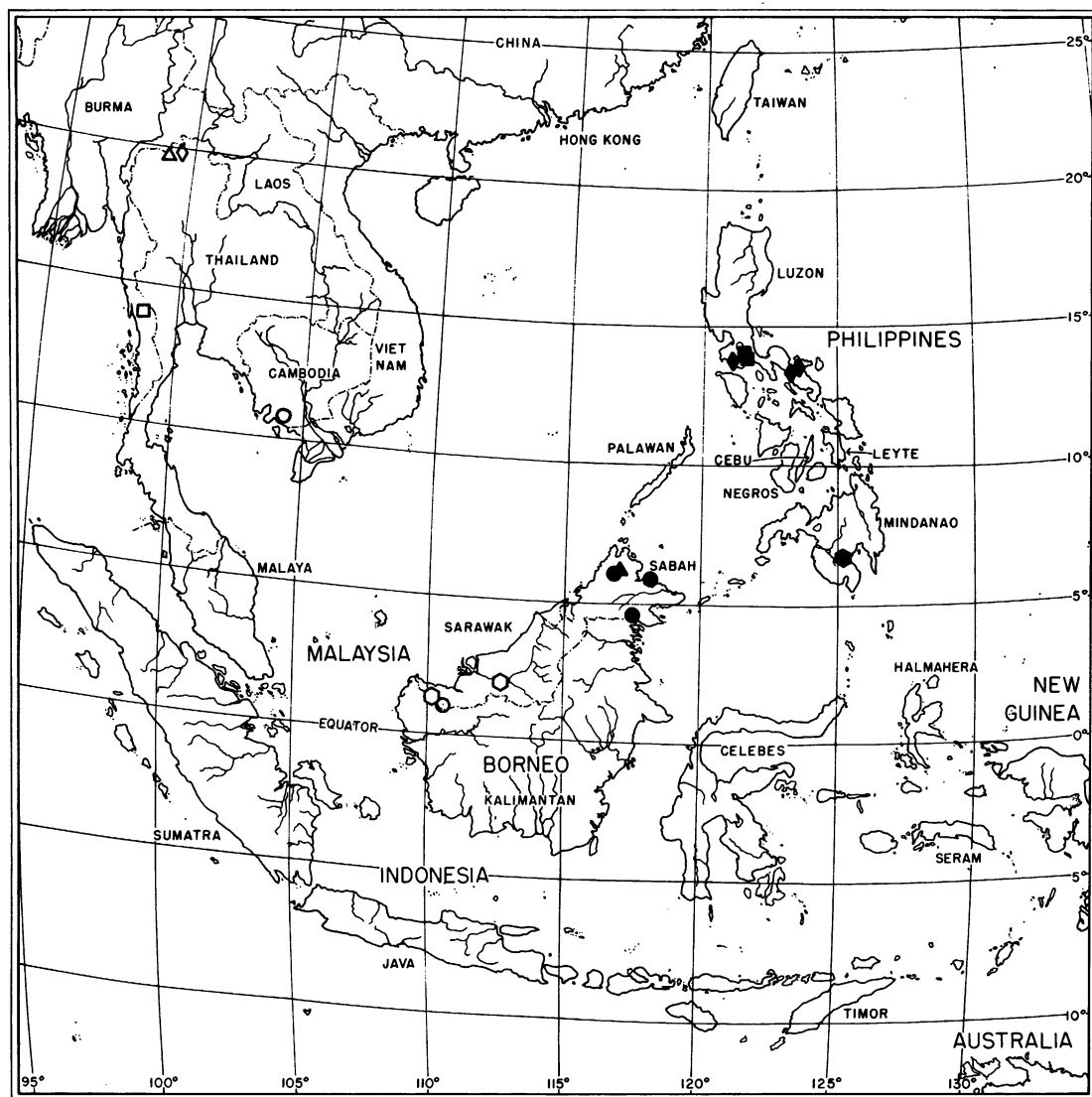


Fig. 63. Distribution of *Prodrumus* species (continued): ●, *apoensis*; ◆, *bakeri*; ○, *cambodiensis*; ◇, *chiangmaiensis*; △, *gressitti*; ◊, *pelagus*; ■, *philippinensis*; ▲, *ranau*; ●, *sabah*; □, *subviridis*.

mon an elongate body form; yellow or brownish yellow general coloration; short (anterior to posterior), vertical head with distinct neck region; prominent, substylate eyes; relatively long, narrow femora; and similar genitalic structures, particularly the large right paramere, prominent lateral processes of the genital capsule, and single, broad membranous sac of vesica with reflexed distal portion and lateral sclerotized straps (see generic description of genitalia for additional detail). The latter two genitalic features are unique to

Prodrumus and *Duducoris* and indicate a sister-group relationship for these genera. *Prodrumus* is distinguished from *Duducoris* by the longer (dorsal to ventral), less hypognathous head with weakly inflated juga and genae; frons weakly convex or nearly straight (length of frons in lateral view as measured from junction with tylus to level of antennal fossae usually greater than length of tylus—length of frons less than length of tylus for most *Duducoris* species); basal $\frac{1}{4}$ – $\frac{1}{2}$ of antennal segment I distinctly narrowed; length

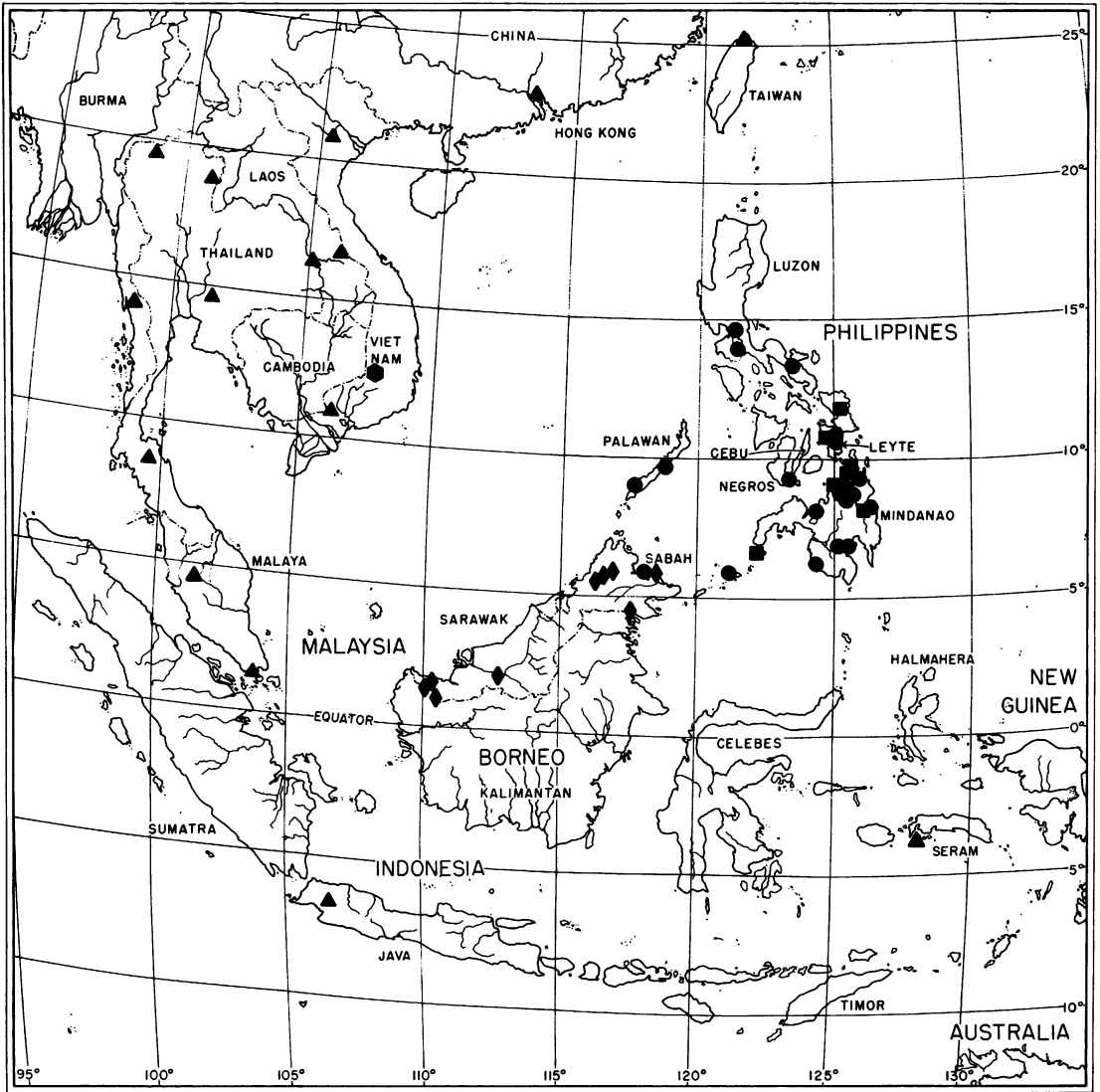


Fig. 64. Distribution of *Prodomus* species (continued): ●, *abuyog*; ◆, *borneoensis*; ▲, *clypeatus*; ■, *mindanao*; ●, *subflavus*. Also *clypeatus* and *subflavus* from Sri Lanka, and *clypeatus* from Chungan and Shaowu, Fukien Prov., S. China.

of antennal segment III greater than or equal to length of segment II; pronotal disk moderately convex; femora relatively longer and narrower, usually slightly swollen distally; and apex of left paramere usually unmodified, not notched or strongly hooked as in most *Duducoris* species.

Two other African genera that bear a superficial resemblance to *Prodomus* are *Kunungua* Carvalho and *Stenopterocoris* China. Like *Prodomus* and *Duducoris*, these genera

possess relatively narrow femora, substylate eyes, a long fourth antennal segment, and a large right paramere, suggesting that together they form a monophyletic group. *Kunungua* is further related to *Duducoris* and *Prodomus* by the shallow, longitudinal sulcus on the vertex and the single, broad, membranous sac of the vesica, apparently without reflexed distal region and lateral sclerites. My observations on the available material do not agree with the statement by Odhiambo (1962:

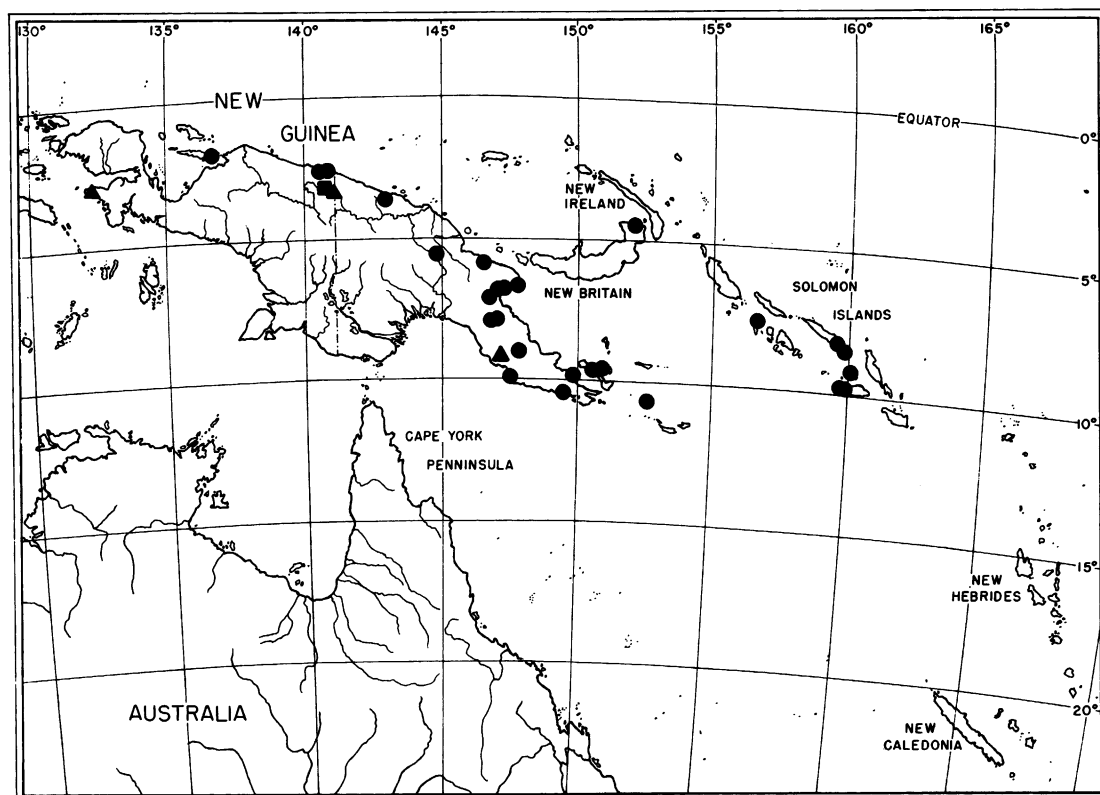


Fig. 65. Distribution of *Prodomus* species (continued): ▲, *nigrus*; ■, *novoguineensis*; ●, *oculatus*.

265) that the vertex of *Duducoris* species is "non-sulcate." The relationship of *Prodomus* and its relatives to other Old World Ecritotarsini will be investigated in a subsequent paper on generic relationships of the tribe (Stonedahl, in prep.).

The host plant associations of *Prodomus* species are poorly known. Two species, *clypeatus* and *oculatus*, are well documented inhabitants of banana (Musaceae) and have been reported feeding on young *Musa* leaves in Southeast Asia, Malaya, and New Guinea. In Ghana, *melanonotus* and *thaliae* have been collected on *Marantochloa* and *Thalia* (Marantaceae). *Prodomus nigrus* and *oculatus* are reported from New Guinea on the plant genus *Heliconia*, but these records would appear to be in error since *Heliconia* is not native to the tropical west Pacific.

CLADISTIC ANALYSIS: The cladistic analysis of *Prodomus* species was performed using the PAUP maximum parsimony computer package (version 2.4) with the global branch-

swapping and MULPARS options specified. Descriptions of the characters are presented in table 9 and the data matrix processed by PAUP given in table 10.

Analysis of this data produced multiple minimal length solutions of 41 steps each. *Duducoris* was used as the outgroup to establish the polarity of the characters. This genus was included in the analysis with the characters coded as the 0 state. A strict consensus tree for the first 100 trees is given in figure 66. The limitations of PAUP (Platnick, 1987) precluded the determination and comparison of all equally parsimonious solutions. In particular, the redundancy of the output resulting from the printout of all possible resolutions of an apparent polychotomy often makes the determination of the actual number of topologically different solutions a time-consuming task. This is especially true if more than 100 putatively different solutions exist, since PAUP will save only the first 100 cladograms for output (memory limitation). In fact,

TABLE 9
Description of *Prodromus* Characters^a

Head	
1.	0(1)—eyes not or weakly elevated above vertex. 1(2)—eyes moderately to strongly elevated above vertex.
2.	0(1)—frons antieriad of antennal fossae weakly to moderately convex. 1(1)—frons antieriad of antennal fossae nearly straight (vertical).
3.	0(1)—tylus moderately produced basally. 1(2)—tylus weakly produced basally.
4.	0(3)—antennal segment II twice or more length of segment I. 1(2)—antennal segment II less than two times length of segment I.
5.	0(2)—lower margin of antennal fossae at level of ventral margin of eye. 1(2)—lower margin of antennal fossae well above ventral margin of eye.
6.	0(3)—labium reaching between procoxae or slightly beyond. 1(3)—labium reaching to middle of mesosternum or beyond.
Pronotum	
7.	0(2)—posterior lobe of pronotal disk flat or nearly so. 1(1)—posterior lobe of pronotal disk noticeably convex.
8.	0(3)—pronotal disk glabrous or with very short setae. 1(1)—pronotal disk with longer setae.
Processes of genital capsule	
9.	0(1)—apex of left lateral process acute. 1(3)—apex of left lateral process blunt or truncate.
10.	0(1)—left lateral process without accessory spines or serrations. 1(2)—left lateral process with accessory spines or serrations distally.
11.	0(2)—right lateral process without accessory spines or serrations. 1(1)—right lateral process with accessory spines or serrations distally.
Parameres	
12.	0(1)—apex of left paramere unmodified. 1(3)—apex of left paramere notched.
13.	0(3)—shaft of left paramere of nearly uniform width. 1(3)—shaft of left paramere expanded distally.
14.	0(1)—shaft of right paramere well developed. 1(1)—shaft of right paramere very short, nearly obsolete.

TABLE 9—(Continued)

Vesica	
15.	0(1)—right margin of vesical sclerite unexpanded. 1(1)—right margin of vesical sclerite noticeably expanded medially or distally.
16.	0(2)—distal membranous portion of vesica without or with very small, scattered spinules. 1(1)—distal membranous portion of vesica with dense patch of strong spines.

^a Numbers followed by a period are coded characters at top of table 10; numbers in second column are character states (0 = plesiomorphic state, 1 = apomorphic state; see body of table 10); numbers in parentheses indicate the number of origins of the character state on the cladogram.

for data sets with more than 20 taxa, you can never be certain that all topologically distinct solutions have been found, not even through exhaustive enumeration or by specifying alternative optimizations. (PAUP's branch-and-bound strategy is limited to data sets with 20 or fewer taxa.) One of the most highly resolved individual solutions is presented in figure 67. This cladogram is considerably different from the one published in Schuh and Stonedahl (1986), which is based on fewer characters and includes only a subset of the taxa analyzed here. The cladogram presented in figure 67 does agree in large part with the biogeographic hypotheses presented in Schuh and Stonedahl (1986). However, as indicated by the consensus tree (fig. 66), other equally parsimonious solutions exist. Some of these are as highly resolved as figure 67 but differ considerably in topology. Given the results presented here, the phylogenetic relationships of *Prodromus* species must be viewed as mostly unresolved.

KEY TO *PRODROMUS* SPECIES

- 1. Pronotal disk dark brown or distinctly suffused with fuscous 2
Pronotal disk uniformly yellow or brownish yellow 4
- 2. Clavus fuscous with anterolateral angle sometimes pale; eyes moderately to strongly elevated above vertex; first antennal segment dark brown to nearly black 3
Clavus pale with inner margin narrowly fuscous; eyes weakly elevated above vertex;

TABLE 10
Character Matrix for *Prodromus* Species

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
<i>abuyog</i>	1	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0
<i>apoensis</i>	1	1	1	0	0	1	1	1	1	1	1	0	1	0	1	1
<i>bakeri</i>	0	0	0	1	0	0	1	1	0	0	0	0	1	1	0	0
<i>borneoensis</i>	0	0	0	0	0	0	1	1	0	0	0	0	1	0	0	0
<i>cambodiensis</i>	0	0	0	1	0	0	1	1	0	0	0	1	0	0	1	0
<i>chiangmaiensis</i>	1	0	0	0	0	0	1	1	1	1	0	1	?	?	1	0
<i>clypeatus</i>	1	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0
<i>gressitti</i>	1	0	0	0	0	0	1	1	1	1	0	0	1	0	1	0
<i>ibbaicus</i>	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0
<i>kawandanus</i>	0	0	0	0	0	1	0	1	0	0	0	1	0	0	0	0
<i>melanonotus</i>	1	0	1	1	1	0	1	0	0	0	0	0	1	0	0	0
<i>mindanao</i>	0	0	0	1	0	0	1	1	0	0	0	0	1	1	0	0
<i>nigrus</i>	1	1	0	1	1	0	1	1	?	1	1	0	1	0	1	1
<i>novoguineensis</i>	1	0	0	1	0	0	1	1	1	1	0	0	1	0	1	1
<i>oculatus</i>	1	1	0	1	1	1	1	0	1	1	0	0	1	0	1	1
<i>pelagus</i>	1	0	0	1	1	1	0	1	0	1	0	0	0	0	0	0
<i>philippinensis</i>	1	1	1	1	0	1	1	1	1	1	1	0	0	0	1	0
<i>ranau</i>	1	1	1	?	1	0	1	1	1	1	0	0	1	0	1	1
<i>sabah</i>	0	0	0	1	0	0	1	1	0	0	0	0	1	0	0	0
<i>subflavus</i>	1	1	1	0	0	1	1	1	1	1	1	0	1	0	1	1
<i>subviridis</i>	1	0	0	0	0	0	1	1	?	?	?	0	1	0	1	0
<i>tafoensis</i>	1	0	1	1	1	0	1	0	0	0	0	0	1	0	0	0
<i>thaliae</i>	1	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0

?—missing character information.

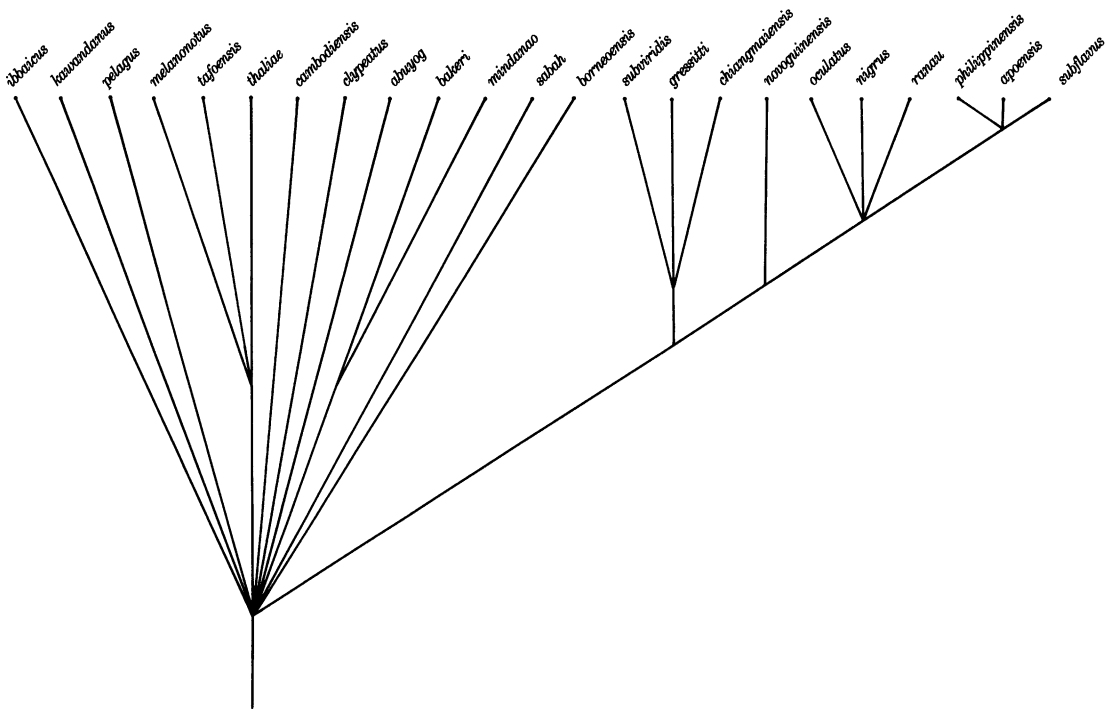


Fig. 66. Strict consensus tree for first 100 trees of 41 steps produced by PAUP analysis of *Prodromus* character matrix (table 10). Character distributions not shown on diagram.

- sal view; vertex weakly convex ventrad of antennal fossae (fig. 90g); male genitalia as in figure 90a-f; Ghana *thaliae* China (pale form)
8. Labium reaching middle of mesosternum; left lateral process of genital aperture bifurcate dorsally (fig. 83b); shaft of left paramere of nearly uniform width (fig. 83c, d); right paramere short, broad (fig. 83e); body length 3.80 (holotype); Sarawak *pelagus*, new species
- Labium reaching slightly beyond apices of procoxae; left process of genital aperture undivided (fig. 89b); shaft of left paramere with strong dorsal protuberance (fig. 89c, d); right paramere elongated, tapered distally (fig. 89e); body length 4.25-4.30; Ghana *tafoensis*, new species
9. Length of antennal segment II two times or more length of antennal segment I ... 10
Length of antennal segment II less than two times length of segment I 19
10. Labium reaching between procoxae or slightly beyond 11
Labium reaching middle of mesosternum or beyond 15
11. Length of antennal segment II greater than posterior width of pronotum; vesical sclerite with strong, basally directed spine near apex (fig. 71f); Sabah and Sarawak *borneensis*, new species
Length of antennal segment II less than or equal to posterior width of pronotum; vesical sclerite without spine near apex ... 12
12. Antennal segments I and II pale yellow, distal fourth of segment II reddish; lower margin of antennal fossa at level of ventral margin of eye (figs. 76g, 88e); body length 3.95-4.35 13
Antennal segments I and II brown or reddish brown, basal fourth to one-third of segment I pale; lower margin of antennal fossa slightly above level of ventral margin of eye (fig. 73f); body length 3.30-3.82 14
13. Vein of hemelytral membrane gently curved distally (fig. 88f); head in lateral view with length of frons (measured between junction with tylus and level of antennal fossae) greater than length of tylus (fig. 88e); right lateral margin of vesical sclerite noticeably expanded medially (fig. 88d); parameres as in figure 88a-c; Lower Burma *subviridis* Distant
Vein of hemelytral membrane strongly curved distally (fig. 76h); length of frons in lateral view less than length of tylus (fig. 76g); right lateral margin of vesical sclerite not expanded medially (fig. 76f); parameres as in figure 76c-e; Sudan ... *ibbaicus* Linnavuori
14. Posterior lobe of pronotal disk and inner half of clavus suffused with green; right paramere with flattened bill-like apical process (fig. 73c, d); body length 3.30-3.65; Thailand *chiangmaiensis*, new species
Pronotum and clavus without greenish suffusion; right paramere without flattened apical process (fig. 75d); body length 3.82 (holotype); Thailand *gressitti*, new species
15. Antennal segment I reddish, base narrowly pale; left paramere with strong apical hook (fig. 77d, e); body length 4.32-4.50 (male only); Uganda and southern Sudan *kawandanus* Odhiambo
Antennal segment I pale yellow or yellowish brown, sometimes with fuscous markings laterally or apically; left paramere without apical hook; body length 4.55-5.62 ... 16
16. Eyes strongly elevated above vertex (fig. 69h); frons nearly vertical ventrad of antennal fossae (fig. 69g); labium reaching apex of mesosternum; membranous vein strongly curved distally (figs. 69i, 87g); right lateral process of genital aperture with subapical spines (figs. 69b, 87b) 17
Eyes weakly to moderately elevated above vertex (fig. 74g); frons weakly convex ventrad of antennal fossae (fig. 68h); labium reaching middle of mesosternum; membranous vein straight or weakly curved distally (figs. 68g, 74h); right process of genital aperture without subapical spines (figs. 68b, 74b) 18
17. Antennal segment II uniformly brown or reddish brown; right paramere L-shaped with distal two-thirds nearly straight (fig. 69c); shaft of left paramere with angulate dorsal protuberance (fig. 69d, e); lateral processes of genital aperture as in figure 69a, b; Mindanao, Philippine Islands *apoensis*, new species
Antennal segment II brownish yellow, basal and apical fourths reddish; right paramere C-shaped with distal two-thirds strongly curved (fig. 87d); shaft of left paramere without dorsal protuberance (fig. 87e, f); lateral processes of genital aperture as in figure 87a, b; Sri Lanka and Viet Nam ... *subflavus* Distant
18. Cuneus reaching apex of hemelytral membrane, cuneal apices narrowly separated; membranous vein nearly straight (fig. 68g); scutellum always pale; right paramere strongly recurved distally (fig. 68e); vesical

- sclerite with small, serrate plate attached to inner apical surface (fig. 68f); Philippine Islands and North Borneo *abuyog*, new species
- Cuneus terminating well anterior of apex of hemelytral membrane, cuneal apices broadly separated; membranal vein noticeably curved distally (fig. 74h); scutellum often suffused with fuscous; right paramere not recurved distally (fig. 74c); vesical sclerite without serrate plate apically (fig. 74f); widespread Indo-Pacific *clypeatus* Distant
19. Length of antennal segment II greater than posterior width of pronotum; eyes produced posteriorly to near level of anterior margin of pronotal collar (fig. 81g); membranal vein weakly curved distally (fig. 81h); New Guinea .. *novoguineensis*, new species
- Length of antennal segment II less than or equal to posterior width of pronotum; eyes not produced posteriorly, well separated anteriorly from pronotal collar; membranal vein moderately to strongly curved distally (figs. 72f, 84g, 86h) 20
20. Eyes strongly elevated above vertex; frons nearly vertical ventrad of antennal fossae (fig. 84f); labium reaching middle of mesosternum or slightly beyond; Luzon, Philippine Islands .. *philippinensis* (Poppius)
- Eyes weakly elevated above vertex; frons weakly to moderately convex ventrad of antennal fossae (figs. 70g, 86g); labium reaching procoxae or slightly beyond 21
21. Knees tinged with red; apex of left paramere bifurcate (fig. 72c); genital aperture with very broad left lateral process and obsolete right process (fig. 72a, b) Cambodia and Sarawak *cambodiensis*, new species
- Knees not tinged with red; apex of left paramere undivided; genital aperture with narrow left lateral process and well developed right process 22
22. Body length 4.12–4.50; lower margin of antennal fossa at level of ventral margin of eye (fig. 86g); shaft of left paramere with large, angulate dorsal protuberance (fig. 86e, f); right paramere large, strongly curved distally (fig. 86d); Sabah *sabah*, new species
- Body length 3.35–3.95; lower margin of antennal fossa slightly above ventral margin of eye (fig. 70g); shaft of left paramere with weak, rounded dorsal protuberance (figs. 70d, e, 79d, e); right paramere small, weakly to moderately curved distally (figs. 70c, 79c) 23
23. Antennal segment I dark ruby red or brownish red; lateral margins of pronotal collar tinged with red; left lateral process of genital aperture with bifurcate apex (fig. 70b); vesical sclerite without apical spine (fig. 70f); Luzon, Philippine Islands *bakeri*, new species
- Antennal segment I brownish yellow, sometimes lightly tinged with red distally; lateral margins of pronotal collar without red markings; left process of genital aperture with undivided apex (fig. 79b); vesical sclerite with small, recurved spine apically (fig. 79f); Mindanao and Samar, Philippine Islands *mindanao*, new species

***Prodromus abuyog*, new species**

Figures 64, 68

DIAGNOSIS: Recognized by the large body size, moderately elevated eyes; antennal segment II twice as long as segment I; long, curved cuneus; nearly straight membranal vein, not curved distally; and structure of the male genitalia, especially the strongly recurved distal portion of the right paramere (fig. 68e) and vesical sclerite with small, serrate plate attached to inner apical surface (fig. 68f).

DESCRIPTION: MALE. Length 4.95–5.62; brownish yellow general coloration, head and anterior lobe of pronotal disk sometimes darker yellowish brown. **HEAD.** Width across eyes 0.89–0.95, width of vertex 0.39–0.41; eyes moderately elevated above vertex, well separated anteriorly from pronotal collar, not projecting posteriorly; frons very weakly convex ventrad of antennal fossae; tylus moderately produced basally, junction with frons distinctly depressed; lower margin of antennal fossa slightly above level of ventral margin of eye; antennal segment I pale yellow or brownish yellow, distal fourth to one-half usually darker brown or reddish brown; antennal segments II–IV brown or dark reddish brown; length of antennal segment I 0.56–0.65, segment II 1.24–1.29; labium reaching middle of mesosternum, length 0.86–0.94. **PRONOTUM.** Posterior width 1.14–1.25, median length 0.84–0.91; posterior margin of disk broadly concave. **HEMELYTRA.** Nearly straight laterally; cuneus reaching apex of membrane, cuneal apices narrowly separat-

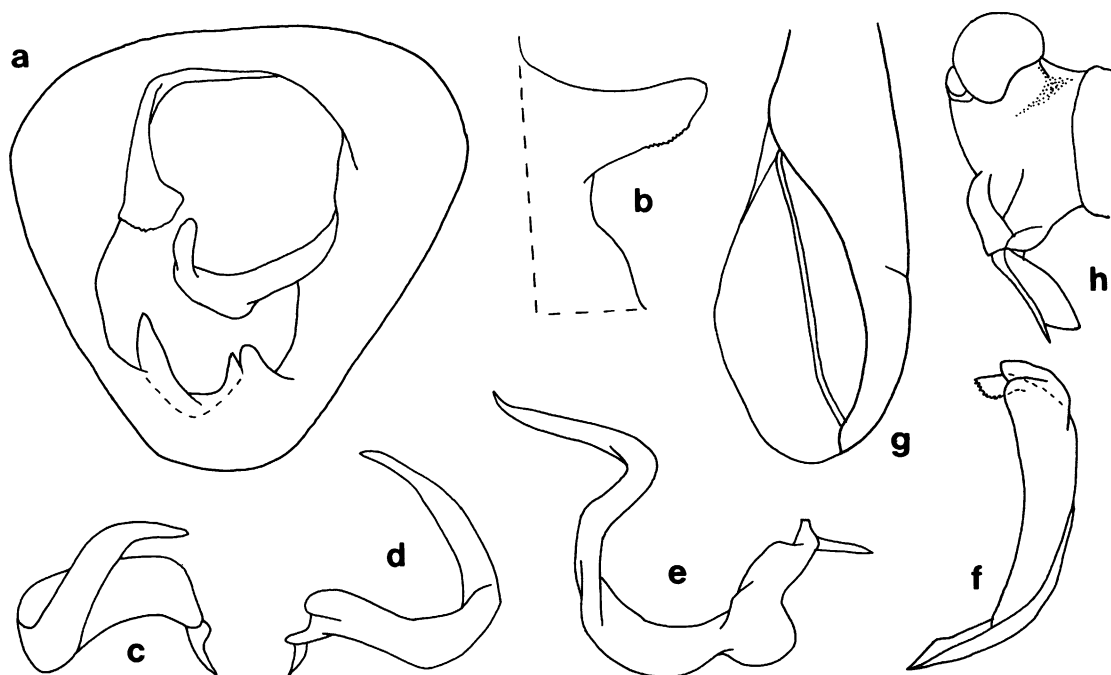


Fig. 68. *Prodromus abuyog*. a-f. Male genitalia. a. Genital capsule, posterior view. b. Left lateral process of genital capsule. c, d. Left paramere. c. Apical view. d. Dorsal view. e. Right paramere, dorsal view. f. Vesica, distal membranous sac omitted. g. Hemelytron. h. Head, lateral view.

ed; membranal vein straight, not curved distally. LEGS. Pale yellow or brownish yellow, tarsi and sometimes apices of tibiae brown or yellowish brown. GENITALIA. Figure 68. FEMALE. Length 5.10–5.42; cuneus terminating slightly anterior of apex of hemelytral membrane; membranal vein very weakly curved distally.

ETYMOLOGY: Named for the type locality; a noun in apposition.

DISTRIBUTION: Philippine Islands and North Borneo (fig. 64).

HOLOTYPE ♂: PHILIPPINE ISLANDS: **Leyte**: Abuyog, 35 mi S of Tacloban, July 9, 1961, P.I. Natl. Mus. and AMNH Expedition (AMNH).

PARATYPES: PHILIPPINE ISLANDS: **Leyte**: 4♂, same data as holotype except July 7–14 (AMNH); 7♂, Dagami, 14 mi SW of Tacloban, July 18–Aug. 11, 1961, P.I. Natl. Mus. and AMNH Expedition (AMNH). **Luzon**: *Rizal Prov.*: 8♂, 25♀, Mt. Montalban, Wa-wa Dam, 150–200 m, Mar. 17, 1965, H. M. Torrevillas (BISH).

ADDITIONAL SPECIMENS: PHILIPPINE ISLANDS: **Luzon**: 1♂, Camarines Sur Prov., Mt.

Iriga, 500–600 m, Apr. 3, 4, 1962, light trap, H. M. Torrevillas (BISH); 1♀, Mt. Makiling, C. F. Baker (USNM). **Mindanao**: 1♂, 2♀, Agusan, Esperanza, Bagugan, Matibog Crk., 300 m, Nov. 7 and 10, 1959, C. M. Yoshimoto (BISH); 4♂, Agusan, Los Arcos, Nov. 19–23, 1959, S. Quate and C. Yoshimoto (BISH); 1♀, Agusan, 6 km SE of San Francisco, Nov. 12–18, 1959, C. M. Yoshimoto (BISH); 1♂, 1♀, Agusan, 10 km SE of San Francisco, Nov. 12 and 13, 1959, L. W. Quate (BISH); 3♀, Davao, C. F. Baker (USNM, UZMH); 5♀, Iligan, C. F. Baker (USNM); 1♂, Kidapawan, July 9, 1950, F. Q. Otanes (USNM); 1♂, Curuan District, Sapamoro, Dec. 20, 1961, Noona Dan Expedition (Copenhagen Museum); 1♀, Zamboanga del Sur, Milbuk, Aug. 10, 1958, light trap, H. E. Milliron (BISH); 1♂, *ibid.*, except 3.2 km NW of Milbuk, 150 m, Aug. 4, 1958 (BISH); 1♂, Surigao, Lake Mainit, Nov. 23–Dec. 1, 1959, light trap, L. Quate and C. Yoshimoto (BISH); *Misamis Oriental Prov.*: 2♂ (Aug. 14, 1965) and 1♀ (July 18, 1965), Dinawihan Gingoog, 26 km E of Gingoog City, 100–300 m, H. Torrevillas (BISH); 1♂, Hindangan, 20 km S of Gingoog,

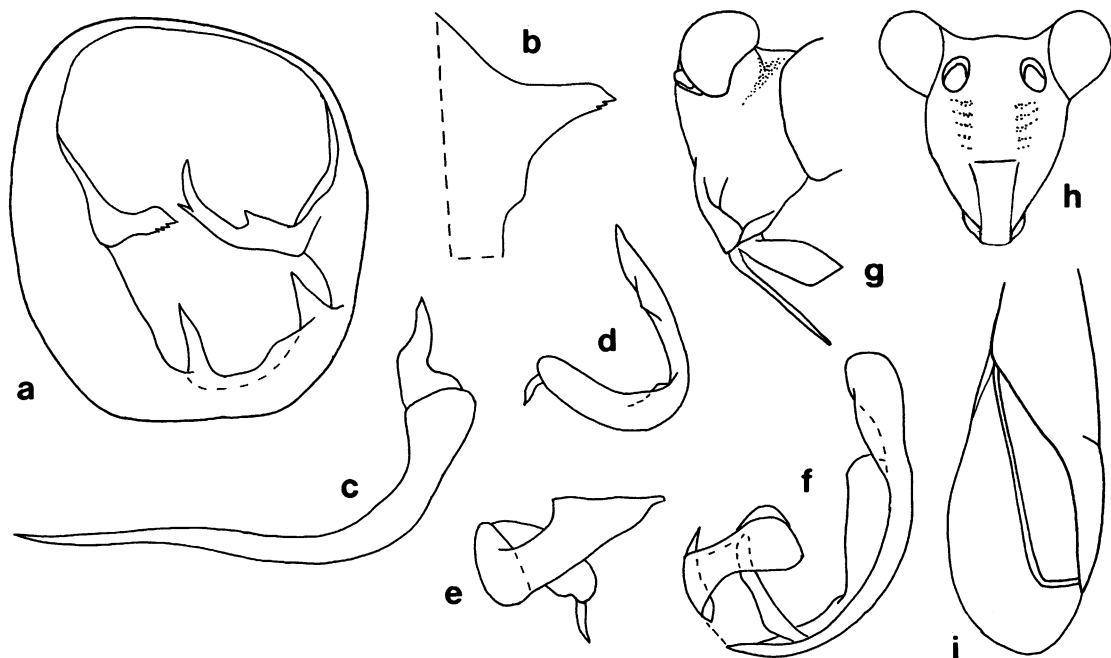


Fig. 69. *Prodrumus apoensis*. a–f. Male genitalia. a. Genital capsule, posterior view. b. Left lateral process of genital capsule. c. Right paramere, dorsal view. d, e. Left paramere. d. Dorsal view. e. Apical view. f. Vesica (distal membranous sac omitted) with phallobase. g, h. Head. g. Lateral view. h. Anterior view. i. Hemelytron.

600–700 m, Mar. 20–24, 1960, light trap, H. M. Torrevillas (BISH); 1♂, Mt. Kibungol, 20 km SE of Gingoog, 700–800 m, Apr. 9–18, 1960, light trap, W. Torrevillas (BISH). **Negros:** *Negros Oriental Prov.*: 1♀, Lake Balinasayao, Oct. 6, 1959, C. M. Yoshimoto (BISH); 2♂, Camp Lookout, Dumaguete, 1600 ft, Apr. 22, 1961, Schneirla and Reyes (AMNH). **Palawan:** 1♂, 1♀, Puerto Princesa, C. F. Baker (USNM, UZMH); 1♂, Eran Pt., 8 km SW of Tarumpitao Pt., Dec. 31, 1959–Jan. 1, 1960, L. W. Quate (BISH). **Sulu Archipelago:** 1♂, Jolo Island, Jolo, Sept. 2, 1958, light trap, H. E. Milliron (BISH). **MALAYSIA:** **Sabah:** 2♂, 2♀, Sandakan, C. F. Baker (USNM).

Prodrumus alboviridescens (Motschulsky),
nomen dubium

Leptomerocoris alboviridescens Motschulsky, 1863: 85 (n. sp.). Distant 1904b: 487 (descr.). Kerzhner and Jansson, 1985: 37 (lectotype design.). *Prodrumus alboviridescens*: Bergroth, 1917: 108 (n. comb., type lost). Odhiambo, 1962: 252 (note).

DISCUSSION: Described by Motschulsky (1863) from Mt. Patannas, Sri Lanka. Distant (1904b) reproduced the original description but stated that he was unable to recognize the species. Bergroth (1917) transferred *alboviridescens* to *Prodrumus* and incorrectly reported that the type was lost (see discussion in Kerzhner and Jansson, 1985: 34). Odhiambo (1962) commented that the description of *alboviridescens* “is quite unsatisfactory for the recognition of the nominal species” and that its “identity is in considerable doubt.” Kerzhner and Jansson (1985) designated a lectotype for *Leptomerocoris alboviridescens*, based on a badly damaged specimen discovered in the Zoological Museum of Moscow University. According to these authors, the specimen is “destroyed” with “only small fragments of rostrum, a complete fore leg, hind tibia, and apices of hemelytra remaining.”

As the name *Prodrumus alboviridescens* cannot be applied with certainty to any known taxon, it is here assigned the status of nomen dubium.

Prodromus apoensis, new species

Figures 63, 69

DIAGNOSIS: Recognized by the strongly elevated eyes; nearly vertical frons (fig. 69g, h); antennal segment II twice as long as segment I; labium reaching to apex of mesosternum or between mesocoxae; membranal vein strongly curved distally (fig. 69i); and structure of the male genitalia, especially the angulate dorsal protuberance on shaft of the left paramere (fig. 69d, e) and vesical sclerite strongly expanded on right lateral margin (fig. 69f).

DESCRIPTION: MALE. Length 4.62–4.92; pale brownish yellow general coloration. **HEAD.** Width across eyes 0.73–0.78, width of vertex 0.34–0.37; eyes strongly elevated above vertex; frons nearly vertical ventrad of antennal fossae; tylus weakly produced basally, sometimes tinged with red distally, junction with frons very shallowly depressed; lower margin of antennal fossa at level of ventral margin of eye; antennal segment I yellowish brown, basal third pale yellow; antennal segment II brown or yellowish brown, usually distinctly tinged with red; antennal segments III–IV brown or dark reddish brown; length of antennal segment I 0.52–0.54, segment II 1.01–1.09; labium reaching apex of mesosternum or between mesocoxae, length 0.88–0.98. **PRONOTUM.** Posterior width 0.98–1.07, median length 0.71–0.78; posterior margin of disk strongly concave medially. **HEMELYTRA.** Nearly straight laterally; cuneus terminating well anterior of apex of membrane; membranal vein strongly curved distally, apex of areolar cell subtruncate. **LEGS.** Yellowish white, last tarsal segment sometimes brownish yellow. **GENITALIA:** Figure 69. Right lateral margin of vesical sclerite noticeably expanded (fig. 69f). **FEMALE.** Length 4.62–5.00.

ETYMOLOGY: Named for the type locality, Mt. Apo.

DISTRIBUTION: Mindanao, Philippine Islands (fig. 63).

HOLOTYPE ♂: PHILIPPINE ISLANDS: **Mindanao:** Mt. Apo, Galog R., 6000 ft, Sept. 26, C. S. Clagg (AMNH).

PARATYPES: PHILIPPINE ISLANDS: **Mindanao:** 2♀ (Sept. 26), 1♂ (Oct. 9), and 1♂, 1♀ (Nov. 4), all with same data as holotype (AMNH,

BISH); 1♂, 1♀, Mt. Apo, Todaya Plateau, 5000 ft, Sept. 2, C. S. Clagg (AMNH).

Prodromus bakeri, new species

Figures 63, 70

DIAGNOSIS: Recognized by the small body size; dark ruby red or brownish red first antennal segment; weakly elevated eyes, well separated from anterior margin of pronotum; lateral margins of pronotal collar usually tinged with red; membranal vein moderately curved distally (fig. 70h); and by the structure of the male genitalia, especially the left process of capsule with bifurcate apex (fig. 70b) and vesical sclerite weakly flared on right lateral margin (fig. 70f).

DESCRIPTION: MALE. Length 3.50–3.62; pale greenish yellow general coloration, fading to brownish yellow in aged preserved specimens. **HEAD.** Width across eyes 0.66–0.68, width of vertex 0.34; eyes weakly elevated above vertex, well separated anteriorly from pronotal collar; frons weakly convex ventrad of antennal fossae; base of tylus weakly produced, junction with frons broadly and shallowly depressed; lower margin of antennal fossae only slightly above ventral margin of eye; antennae dark ruby red or brownish red, length of segment I 0.50–0.54, basal third strongly narrowed, length of segment II 0.71–0.81; labium reaching between procoxae or slightly beyond, length 0.51–0.59. **PRONOTUM.** Posterior width 0.75–0.86, median length 0.59–0.64; collar slightly broader than diameter of antennal segment I, lateral margins usually tinged with red; posterior margin of disk broadly concave medially. **HEMELYTRA.** Weakly rounded laterally, cuneus terminating anterior of apex of membrane by distance equal to dorsal length of eye; membranal vein moderately curved distally. **LEGS.** Uniformly pale yellow, apices of tibiae and tarsi sometimes more brownish yellow. **GENITALIA:** Figure 70. Left tergal process of genital capsule with bifurcate apex (fig. 70b). **FEMALE.** Length 3.35–3.80.

ETYMOLOGY: Named for Charles Fuller Baker (1872–1927), avid collector of insects and plants in the Philippine Islands and many other areas of the tropical west Pacific during the last fifteen years of his life.

DISTRIBUTION: Luzon, Philippine Islands (fig. 63).

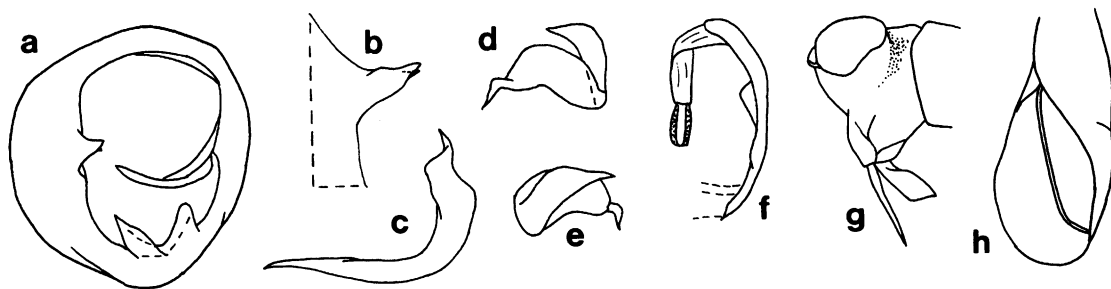


Fig. 70. *Prodromus bakeri*. a–f. Male genitalia. a. Genital capsule, posterior view. b. Left lateral process of genital capsule. c. Right paramere, dorsal view. d, e. Left paramere. d. Lateral view. e. Apical view. f. Vesica. g. Head, lateral view. h. Hemelytron.

HOLOTYPE ♂: PHILIPPINE ISLANDS: **Luzon**: Mt. Makiling, C. F. Baker (USNM).

PARATYPES: PHILIPPINE ISLANDS: **Luzon**: 5♂, 3♀, same data as holotype (AMNH, USNM, UZMH); 2♂, 1♀, Camarines Sur, Mt. Iriga, 500–600 m, Apr. 9, 1962, H. M. Torre Villas (BISH); 2♀, *ibid.*, except Apr. 26, 1962 (BISH); 1♂, Camarines Sur, Mt. Isarog, 500 m, Apr. 4, 1963, H. M. Torre Villas (BISH); 1♀, *ibid.*, except 500–600 m, Apr. 5, 1963, light trap, and “20 km E of Naga” added to locality data (BISH).

ADDITIONAL SPECIMEN: 1 individual (abdomen and hemelytra missing), same data as holotype.

***Prodromus borneoensis*, new species**

Figures 64, 71

DIAGNOSIS: Recognized by the small body size; second antennal segment twice as long as first segment; hemelytra broadly rounded laterally; membranous vein of hemelytra

strongly curved distally, apex of areolar cell subtruncate (fig. 71g); and the structure of the male genitalia, especially the long, weakly curved right paramere (fig. 71c) and right margin of vesical sclerite with strong, basally directed spine near apex (fig. 71f).

DESCRIPTION: MALE. Length 3.70–3.92; yellowish brown general coloration, hemelytra usually more greenish yellow. HEAD. Width across eyes 0.70–0.75, width of vertex 0.34–0.35; eyes only slightly elevated above vertex, well separated anteriorly from pronotal collar; frons moderately convex ventrad of antennal fossae; tylus moderately produced basally; lower margin of antennal fossa at level of ventral margin of eye; antennal segment I yellowish brown, sometimes darker reddish brown distally, basal third strongly narrowed and sometimes pale yellow; antennal segments II–IV dark brownish red; length of antennal segment I 0.46–0.48, segment II 0.95–1.02; labium reaching slightly beyond apices of procoxae, length 0.60–0.65.

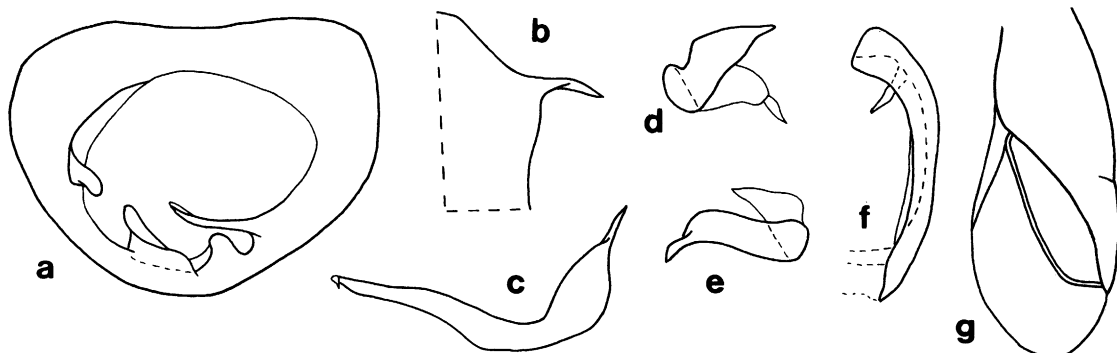


Fig. 71. *Prodromus borneoensis*. a–f. Male genitalia. a. Genital capsule, posterior view. b. Left lateral process of genital capsule. c. Right paramere, dorsal view. d, e. Left paramere. d. Apical view. e. Lateral view. f. Vesica, distal membranous sac omitted. g. Hemelytron.

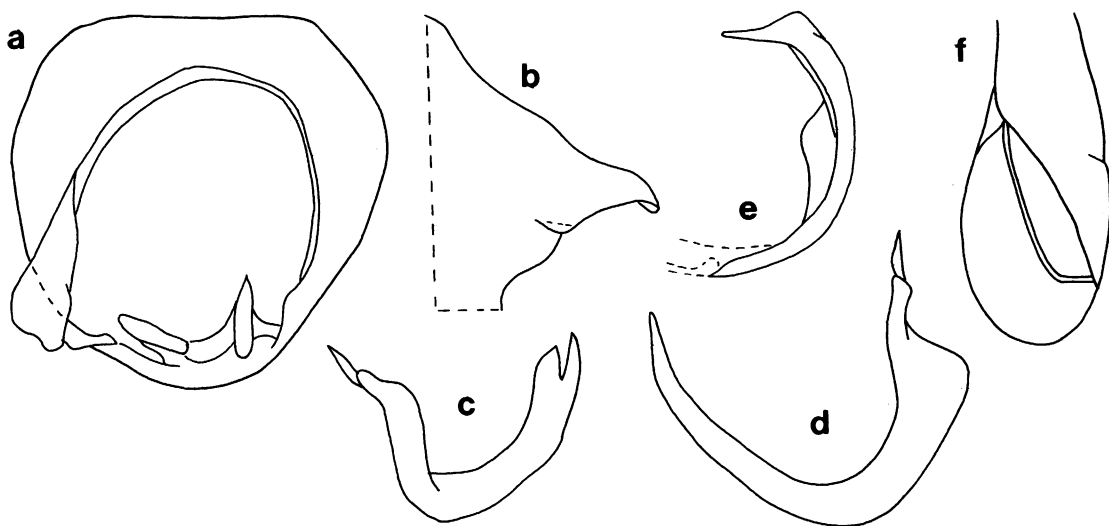


Fig. 72. *Prodrumus cambodiensis*. a–e. Male genitalia. a. Genital capsule, posterior view. b. Left lateral process of genital capsule. c. Left paramere, dorsal view. d. Right paramere, dorsal view. e. Vesica, distal membranous sac omitted. f. Hemelytron.

PRONOTUM. Posterior width 0.85–0.91, median length 0.64–0.72; posterior margin of disk broadly concave. HEMELYTRA. Broad, more strongly rounded laterally than for other small species of the Philippines-Borneo region; cuneus terminating well anterior of apex of membrane; membranal vein strongly curved distally, apex of areolar cell subtruncate. LEGS. Pale yellow or brownish yellow, tarsi and apices of tibiae sometimes darker yellowish brown. GENITALIA. Figure 71. Right paramere weakly curved distally, projecting laterally well beyond left margin of genital capsule in posterior view. FEMALE. Length 3.68–4.15.

ETYMOLOGY: Named for its occurrence on the Island of Borneo.

DISTRIBUTION: Sabah and Sarawak, Malaysia (fig. 64).

HOLOTYPE ♂: MALAYSIA: **Sabah**: Singkor, Jan. 19, 1959, light trap, T. C. Maa (BISH).

PARATYPES: MALAYSIA: **Sabah**: 8♂, 5♀, same data as holotype (BISH); 14♂, 16♀, same data as holotype except collected in "secondary forest" (AMNH, BISH); 1♂, 3♀, Liawan, Jan. 14–19, 1959, sweeping, T. C. Maa (BISH); 2♂, Ranau, 500 m, Sept. 28–Oct. 7, 1958, T. C. Maa (BISH); 1♀, *ibid.*, except Jan. 14–17, 1959 (BISH); 1♂, Sandakan, C. F. Baker (USNM); 1♂, Sensuron, Jan. 9–11, 1959, light trap, J. and M. Sedlacek (BISH); 3♂, 2♀, Tam-

bunan, Jan. 7, 1959, T. C. Maa (BISH); 2♂, 1♀, Tawau District, Kalabakan primary forest, Nov. 8–15, 1958, T. C. Maa (BISH). **Sarawak**: 3♂, 2♀, Bau Lake Area, Aug. 29–30, 1958, T. C. Maa (BISH); 1♂, 4♀, Nanga Pelagus, Aug. 7–14, 1958, T. C. Maa (BISH); 1♂, 4♀, Nanga Pelagus, nr. Kapit, 180–585 m, Aug. 7–14, 1958, T. C. Maa (BISH); 1♂, 1♀ [no specific locality data], June–Sept., 1958, T. C. Maa (BISH).

ADDITIONAL SPECIMENS: MALAYSIA: **Sabah**: 1♀, Paring, nr. Ranau, Jan. 23, 1958; T. C. Maa (BISH). **Sarawak**: 1♀, Kuching, Santubong, 797–1500 m, June 18–30, 1958, T. C. Maa (BISH).

Prodrumus cambodiensis, new species

Figures 63, 72

DIAGNOSIS: Distinguished from other small species of *Prodrumus* in southeast Asia and the tropical west Pacific by the reddish tinge on the knees; membranal vein of hemelytra strongly curved distally (fig. 72f); and by the structure of the male genitalia, especially the bifurcate apex of the left paramere (fig. 72c), large, strongly curved right paramere (fig. 72d), vesical sclerite with acuminate apex and abruptly expanded right lateral margin (fig. 72e), and genital capsule with very broad left process and no right process (fig. 72a, b).

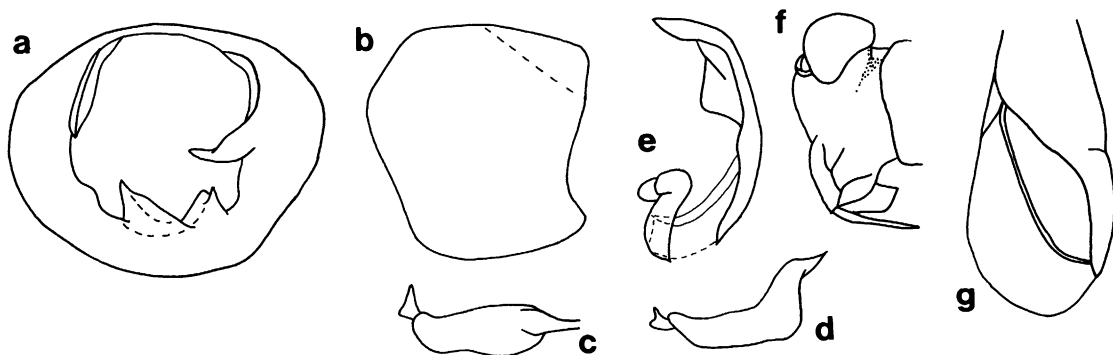


Fig. 73. *Prodromus chiangmaiensis*. a–e. Male genitalia. a, b. Genital capsule. a. Posterior view. b. Left lateral view. c, d. Right paramere. c. Inside lateral view. d. Dorsal view. e. Vesica (distal membranous sac omitted) with phallobase. f. Head, lateral view. g. Hemelytron.

DESCRIPTION: MALE. Length 4.00–4.24; pale brownish yellow general coloration, hemelytra with faint greenish tinge. **HEAD.** Width across eyes 0.73–0.76, width of vertex 0.34–0.36; eyes weakly elevated above vertex, well separated anteriorly from pronotal collar; frons weakly convex ventrad of antennal fossae; tylus moderately produced basally; lower margin of antennal fossa slightly above level of ventral margin of eye; antennae dark brownish red, segment I usually slightly paler; length of antennal segment I 0.51–0.55, basal third strongly narrowed, length of segment II 0.86–0.88; labium reaching between procoxae, length 0.52–0.62. **PRONOTUM.** Posterior width 0.89–0.94, median length 0.69–0.72, posterior margin of disk broadly concave medially. **HEMELYTRA.** Weakly rounded laterally; cuneus terminating well anterior of apex of membrane; membranal vein strongly curved distally, apex of areolar cell truncated. **LEGS.** Pale yellow; apices of femora and bases of tibiae narrowly tinged with red; apices of tibiae and tarsi usually darker brownish yellow. **GENITALIA.** Figure 72. **FEMALE.** Length 3.85–4.20.

ETYMOLOGY: Named for its occurrence in Cambodia.

DISTRIBUTION: Cambodia and Sarawak, Malaysia (fig. 63).

HOLOTYPE ♂: CAMBODIA: Damrey Phong, Apr. 14–16, 1961, N. R. Spencer (BISH).

PARATYPES: 4♀, same data as holotype (BISH).

ADDITIONAL SPECIMENS: MALAYSIA: **Sarawak:** 1♂, 1♀, Sadong, Kampong, Tapuh, 300–

450 m, July 4–9, 1958, T. C. Maa (BISH); 1♂ [no specific locality data], gift of R. Thaxter (AMNH).

Prodromus chiangmaiensis, new species

Figures 63, 73

DIAGNOSIS: Recognized by the small body size; moderately elevated eyes; short first antennal segment; greenish suffusion on posterior lobe of pronotal disk and inner half of clavus; membranal vein gently curved distally (fig. 73g); and structure of the male genitalia, especially the broad left lateral process of the genital aperture (fig. 73a, b) and right paramere with dorsoventrally flattened, bill-like apical process (fig. 73c, d).

DESCRIPTION: MALE. Length 3.65; pale yellow general coloration, hemelytra more brownish yellow, posterior lobe of pronotal disk and inner half of clavus suffused with green. **HEAD.** Width across eyes 0.66, width of vertex 0.32; eyes moderately elevated above vertex, projecting posteriorly to near level of anterior margin of pronotal collar; posterior juncture of eye and head weakly notched in dorsal view; frons weakly convex ventrad of antennal fossae; tylus weakly produced basally, junction with frons shallowly depressed; lower margin of antennal fossa slightly above level of ventral margin of eye; antennal segment I brown, basal fourth pale yellow and strongly narrowed; antennal segment II dark reddish brown; length of antennal segment I 0.40, segment II broken basally; labium reaching slightly beyond apices of

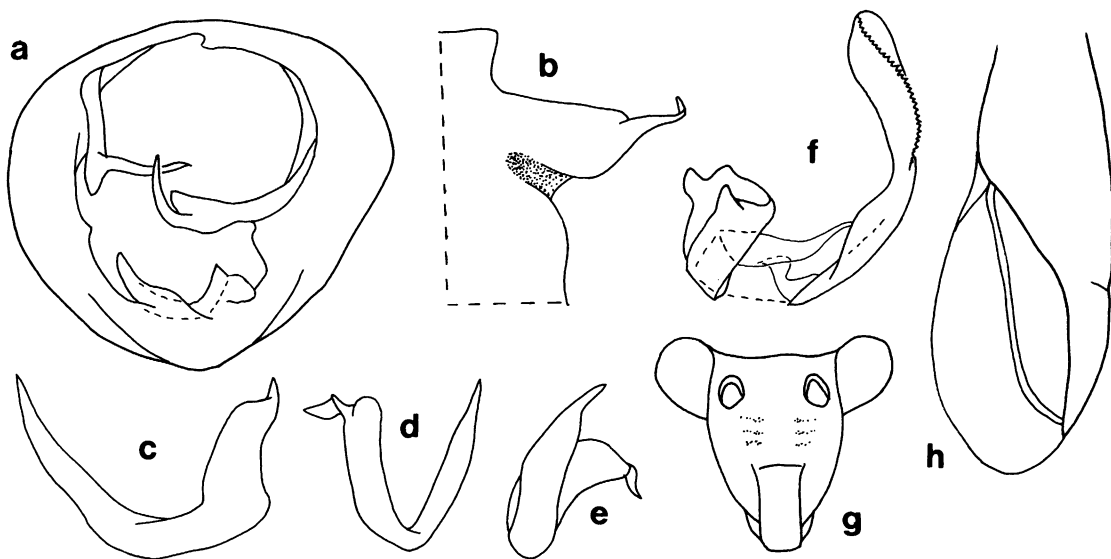


Fig. 74. *Prodomus clypeatus*. a–f. Male genitalia. a. Genital capsule, posterior view. b. Left lateral process of genital capsule. c. Right paramere, dorsal view. d, e. Left paramere. d. Dorsal view. e. Apical view. f. Vesica (distal membranous sac omitted) with phallobase. g. Head, anterior view. h. Hemelytron.

procoxae, length 0.54. PRONOTUM. Posterior width 0.99, median length 0.62; posterior margin of disk moderately concave medially. HEMELYTRA. Weakly rounded laterally; cuneus reaching near apex of membrane; membranous vein gently curved distally. LEGS. Pale yellow, tibiae distally and tarsi more brownish yellow, last tarsal segment darker yellowish brown. GENITALIA. Figure 73. Genital capsule slightly damaged with left paramere missing and right paramere broken distally. FEMALE. Length 3.30; length of antennal segment II 0.79.

ETYMOLOGY: Named for its occurrence in the Chiangmai Province of Thailand.

DISTRIBUTION: Northwestern Thailand (fig. 63).

HOLOTYPE ♂: THAILAND: **Chiangmai Prov.:** Fang (Agr. Exp. Station), 600 m, June 14, 1965, P. D. Ashlock (BISH).

PARATYPE: 1♀, same data as holotype (BISH).

Prodomus clypeatus Distant

Figures 64, 74

Prodomus clypeatus Distant, 1904b: 437 (n. sp.).
Odhiambo, 1962: 256–257, fig. 7, 25–28 (descr.).
Carvalho, 1981b: 6 (note).

Prodomus cuneatus Distant, 1909: 453 (n. sp.);

1910b, 246–247, fig. 134 (descr.). Odhiambo, 1962: 255–256, figs. 8, 22–24 (renewed comb., descr.). NEW SYNONYMY.

Prodomopsis cuneatus: Poppius, 1911: 4–6 (as type of *Prodomopsis*). Carvalho, 1980: 656 (note); 1981a: 80–81 (renewed comb.); 1981b: 6 (note).

Sinervus cuneatus: Carvalho, 1948: 191 (n. comb.).

Prodomopsis scutellaris Poppius, 1914: 159–160 (n. sp.). Carvalho, 1980: 656 (note, type); 1981a: 80–81 (renewed comb.). NEW SYNONYMY.

Sinervus scutellaris: Carvalho, 1948: 191 (n. comb.).

Prodomopsis basalis Poppius, 1915a: 56–57 (n. sp.). Carvalho, 1980: 656 (note, types); 1981a: 80–81 (renewed comb.). NEW SYNONYMY.

Sinervus basalis: Carvalho, 1948: 191 (n. comb.).

Prodomus cochinesis Odhiambo, 1962: 262–263, fig. 9 (n. sp.). NEW SYNONYMY.

DIAGNOSIS: Recognized by the moderate to large body size; slightly elevated eyes; weakly convex frons; short first antennal segment, length less than half that of segment two; labium reaching middle of mesosternum; scutellum often suffused with fuscous; cuneus terminating well anterior of apex of hemelytral membrane (fig. 74h); and structure of the male genitalia, especially the vesical sclerite without expanded region on right lateral margin, and outer distal surface of sclerite

with weakly elevated row of small spines (fig. 74f).

REDESCRIPTION: MALE. Length 4.45–5.25; pale brownish yellow general coloration; head sometimes darker yellowish brown; scutellum sometimes lightly to heavily suffused with fuscous. **HEAD.** Width across eyes 0.80–0.85, width of vertex 0.38–0.40; eyes only slightly elevated above vertex, not noticeably produced posteriorly, well separated anteriorly from pronotal collar; frons weakly convex ventrad of antennal fossae; tylus moderately produced basally, junction with frons shallowly depressed; lower margin of antennal fossa slightly above level of ventral margin of eye; antennal segment I pale yellow or brownish yellow, basal third strongly narrowed; antennal segment II yellowish brown, apical quarter and sometimes basal third to one-half reddish, or occasionally entire segment brown or reddish brown; antennal segments III and IV brown or reddish brown; length of antennal segment I 0.39–0.48, segment II 0.88–1.15; labium reaching middle of mesosternum, length 0.76–0.95. **PRONOTUM.** Posterior width 1.10–1.28, median length 0.66–0.81; posterior margin of disk broadly concave medially. **HEMELYTRA.** Weakly rounded laterally; cuneus terminating well anterior of apex of membrane; membranous vein weakly curved distally. **LEGS.** Pale yellow or brownish yellow, last tarsal segment brown. **GENITALIA.** Figure 74. **FEMALE.** Length 4.85–5.15.

DISTRIBUTION: Sri Lanka, SE Asia, southern China, Taiwan, Malaya, Java, Ambon (fig. 64).

TYPES: *Prodromus clypeatus*: LECTOTYPE ♀ (new designation): Label 1, "Tenass [erim] Vall[ey], Myitta, (Doherty)."; 2, "*clypeatus* Dist." [handwritten]; 3, "Distant Coll., 1911-383"; 4, "Syntype" [blue-bordered disk]; 5, "Type, H.T." [red-bordered disk] (BMNH). Paralectotypes: 1♀, same data as lectotype but without labels 2, 4, and 5 above (BMNH).

Prodromus cuneatus: LECTOTYPE ♂ (new designation—hemelytra, right antenna and legs, and left hind leg missing): Label 1, "Peradeniya, Ceylon, 5-09"; 2, "Distant Coll., 1911-383"; 3, "2387"; 4, "Syntype" [blue-bordered disk] (BMNH). Paralectotype: 1 specimen (abdomen missing), same data as lectotype but with handwritten identification

label, "*Prodromus cuneatus* Dist., Type" (BMNH). Although Odhiambo (1962) considers the later specimen to be a holotype, apparently on the basis of the handwritten label, there is no evidence in the original description (Distant, 1909) that a type was designated, or that the description was based on a single specimen. Also, there is no indication that the identification label was written or applied to the specimen by Distant. On the basis of this information, I have selected the male specimen as the lectotype because it is in better condition and allows for positive recognition of the species.

Prodromopsis scutellaris: LECTOTYPE ♂ (new designation): Label 1, "Banjuwangi, Java, 1908, McGillavry"; 2, "*Prodromopsis scutellaris* n. sp. [handwritten] B. Poppius det."; 3, "Syntype" [orange rectangle]; deposited in the Rijksmuseum van Natuurlijke Historie, Leiden.

Prodromopsis basalis: LECTOTYPE ♂ (new designation): Label 1, "Taihorinsho, Formosa, H. Sauter"; 2, "7.X."; 3, "*Prodromopsis basalis* n. sp." [handwritten]; 4, "Mus. Zool. H: fors, Spec. typ. No. 10229, *Prodromopsis basalis* Popp." (UZMH). Paralectotypes: 2♂, 9♀, same data as lectotype except no handwritten identification label and with date, 7. IX. 1909 (two female specimens with Helsinki Spec. typ. No's. 10230 and 10231) (UZMH, AMNH); 5♀, Taihorin, Formosa, I. 1910 Sauter (one specimen with handwritten label, "*Prodromopsis basalis* n. sp.", and red-bordered "typus" label) (HNHM). Also deposited in the HNHM is a single female specimen bearing the handwritten identification label, "v. *scutellaris* n." and with label data, "Taihorin Formosa, V. 1910, Sauter." The dark coloration on the pronotum and scutellum of this specimen is discussed in the original description of *basalis*, where it is followed by the phrase "var. *scutellaris* n." in parentheses. Since it is clear from the content of the description that Poppius (1915) was only attempting to distinguish a color "form" or "variety" of the nominal species *basalis*, the name "*scutellaris*" as used in conjunction with the binomial *Prodromopsis basalis* is interpreted to be of infrasubspecific rank and thus have no status as a species group name (see Int. Code Zool. Nomen., 1985—Article 45 e–g). Considering the questionable status

of the above-described specimen, it will not be designated here as a paralectotype of the nominal species, *P. basalis*. Carvalho (1980), apparently confused by the "*v. scutellaris* n." label, incorrectly listed this specimen as a probable type of the nominal species *Prodromopsis scutellaris* Poppius, 1914.

Prodromus cochinesis: HOLOTYPE ♀: Cochin State, C. Farm, on plantain leaves, 8-11-1936, Venkatasubban Coll. (BMNH). Identified in 1937 as *Prodromus subflavus* Distant.

ADDITIONAL SPECIMENS: PEOPLE'S REPUBLIC OF CHINA: **Fukien Prov.**: 1♂, 1♀, Chungan, Bohea Hill, Jan. 4, 1941, T. C. Maa (BISH); 1♂, June 17, 1944 and 1♀, Oct. 1944, Shaowu, Kuhsienkai, T. C. Maa (BISH). **Kwangtung Prov.**: 1♀, P'an-yu District, Kuangchou (Canton), Honam Is., Nov. 24, 1935, W. E. Hoffman (BMNH). INDONESIA: **Ambon (Amboina)**: 1♂, F. Muir (CAS). **Java**: 1♂, Bogor (Buitenzorg), "31.T.19.", W. Roepke (USNM). LAOS: 1♀, Dong Dok, Dec. 6, 1965 (BISH); 1♂, Vientiane Prov., Ban Van Eue, Oct. 1965, light trap (BISH). MALAYSIA: **Malaya**: 5♂, 5♀, Jebebu, Dec. 19, 1934, ex. *Musa sapientum* L. (BMNH); 1♀, Pahang Prov., Cameron Highlands [Ginting Kial], 5000 ft, May 27, 1939, H. M. Pendlebury (BMNH). SINGAPORE: 1♂, C. F. Baker coll. (USNM); 1♀, Namley Ave., Sept. 2, 1981, G. G. E. Scudder (BISH). SRI LANKA: 1♂, Madarasz, Kala-Wewa, Feb. 6-10, 1896, (HNHM). TAIWAN: 1♂, Chaochi, nr. Yilan to Pinglin, Taipei Hsien, Apr. 15-16, 1965, sweeping, C. M. Yoshimoto (BISH). THAILAND: 1♂, Bang Bum Roo, Nov. 17, 1933, W. R. S. Ladell (BMNH); 1♀, Banna, Chawang, nr. Nabon, 70 m, Sept. 6, 1958, J. L. Gressitt (BISH); 1♂, Chiangdao, April 5-11, 1958, light trap, T. C. Maa (BISH); 1♀, Nan, Dec. 31, 1927, on banana leaves, J. D. A. Cockerell (BMNH); 2♂, Pak Chong, Dec. 1-3, 1957, T. C. Maa (BISH); 9♀ [no specific locality data], 1962, on banana leaves (BMNH). VIETNAM: 2♂, Tonkin, Hoabinh, Aug. 1918, R. V. de Salvaza (BMNH); 3♀, Cochin China, Trang Bom, 30 mi NW of Saigon, July 30 and Aug. 5, 1932, M. Poilane (USNM).

DISCUSSION: *Prodromus cuneatus* has had a complex history of generic assignments. Shortly after the original description by Distant (1909), it was moved into the new genus

Prodromopsis and designated as the type species by Poppius (1911). Later, Carvalho (1948) synonymized *Prodromopsis* with the New World genus *Sinervus* Stål. Odhiambo (1962) reassigned *cuneatus* to *Prodromus* but retained the remaining Old World species of Poppius in *Sinervus*. Carvalho (1981a) reinstated *Prodromopsis* (with its type species, *cuneatus*) as a valid generic level taxon without mention of the previous assignment of *cuneatus* to *Prodromus* by Odhiambo. In the present treatment, *cuneatus* is again reassigned to the genus *Prodromus* and proposed as the junior synonym of *clypeatus*.

The new synonymies proposed above are based on a comparison of all available type material, as well as other specimens from throughout the range of *clypeatus*. This taxon was described twice by W. L. Distant (1904b, 1909), twice by B. Poppius (1914, 1915a), and once by T. R. Odhiambo (1962). Variation in the color of the antennae and scutellum, and different interpretations of the length of the cuneus lead these authors to redescribe what is in my opinion a distinct species based on characters of the male genitalia. Further, Odhiambo used different proportional lengths of the antennae to distinguish *cochinensis* and other species of *Prodromus*. I have had little success in distinguishing members of this genus using antennal proportions, with the exception of limited use of segments I and II.

Prodromus gressitti, new species

Figures 63, 75

DIAGNOSIS: Similar to *chiangmaiensis* in head structure and general coloration but distinguished by slightly larger body size, pronotum and clavus without distinct greenish suffusion, and structure of the male genitalia, particularly the shape of the left paramere (fig. 75b, c) and the left lateral process of the genital aperture (fig. 75a).

DESCRIPTION: MALE. Length 3.82; pale brownish yellow general coloration, with no detectable greenish tinge on pronotum or hemelytra. HEAD. Slightly darker brownish yellow; width across eyes 0.66, width of vertex 0.31; eyes moderately elevated above vertex, projecting posteriorly to level of anterior margin of pronotal collar; posterior juncture

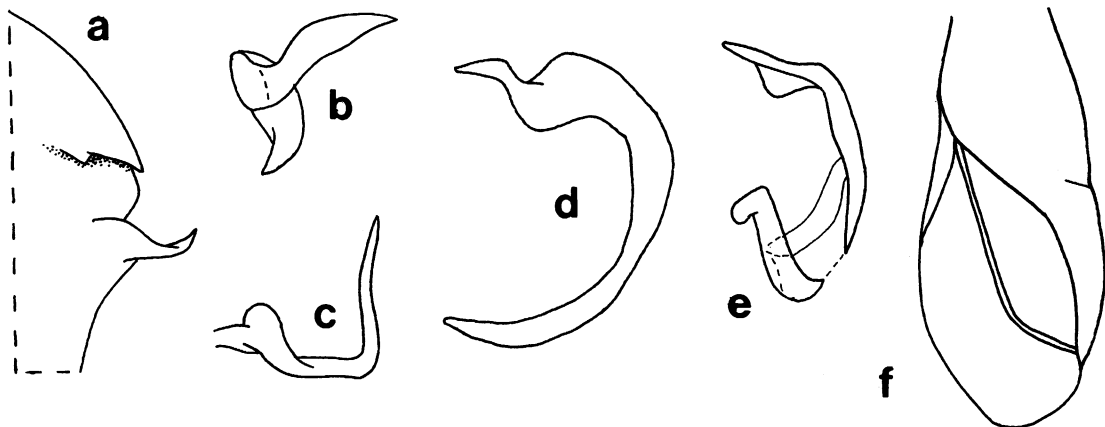


Fig. 75. *Prodromus gressitti*. a–e. Male genitalia. a. Left lateral process of genital capsule. b, c. Left paramere. b. Apical view. c. Dorsal view. d. Right paramere, dorsal view. e. Vesica (distal membranous sac omitted) with phallobase. f. Hemelytron.

of eye and head notched in dorsal view; frons very weakly convex ventrad of antennal fossae; tylus weakly produced basally, junction with frons shallowly depressed; lower margin of antennal fossa slightly above level of ventral margin of eye; antennal brown, basal third of segment I pale, distal fourth of segment II tinged with red; length of antennal segment I 0.39, basal third strongly narrowed, length of segment II 0.86; labium reaching slightly beyond apices of procoxae, length 0.60. PRONOTUM. Posterior width 0.89, median length 0.64; posterior margin of disk moderately concave. HEMELYTRA. Weakly rounded laterally; cuneus terminating well anterior of apex of membrane; membranal vein moderately curved distally. LEGS. Pale yellow, last tarsal segment yellowish brown. GENITALIA. Figure 75. Genital capsule and parameres teneral; capsule damaged during dissection, lateral processes of aperture remaining well preserved; parameres partially collapsed and distorted. FEMALE. Unknown.

ETYMOLOGY: Named for J. L. Gressitt.

DISTRIBUTION: Northwestern Thailand (fig. 63).

HOLOTYPE ♂: THAILAND: **Chiangmai Prov.:** Pangmakampon (Pankampawag), nr. Fang, 450 m, Nov. 16, 1957, J. L. Gressitt (BISH).

Prodromus ibbaicus Linnavuori

Figures 62, 76

Prodromus ibbaicus Linnavuori, 1975: 4, fig. 2 (n. sp.).

DIAGNOSIS: Recognized by the weakly elevated eyes and posterior lobe of pronotal disk; lower margin of antennal fossa at level of ventral margin of eye (fig. 76g); antennal segment II slightly more than twice as long as segment I; labium reaching slightly beyond procoxae; vein of hemelytral membrane strongly curved distally (fig. 76h); and male genitalia with broad, minutely tuberculate left lateral process of the genital capsule (fig. 76a, b) and vesical sclerite unexpanded on right lateral margin (fig. 76f). Most similar to *kawandanus* in general appearance and head structure, but distinguished by the shorter labium, pale first and second antennal segments, red knees, and structure of the male genitalia.

REDESCRIPTION: MALE. Length 4.00–4.35; pale brownish yellow general coloration, hemelytra lightly tinged with green. HEAD. Width across eyes 0.64–0.66, width of vertex 0.30; eyes not or very weakly elevated above vertex, well removed from anterior margin of pronotal collar; frons short, moderately convex ventrad of antennal fossae; tylus moderately produced basally, junction with tylus distinctly depressed; lower margin of antennal fossa at level of ventral margin of eye; antennal segments I and II pale yellow or brownish yellow, distal fourth of segment II reddish; antennal segments III and IV darker yellowish brown, tinged with red distally; length of antennal segment I 0.34–0.39, segment II 0.71–0.84; labium reaching

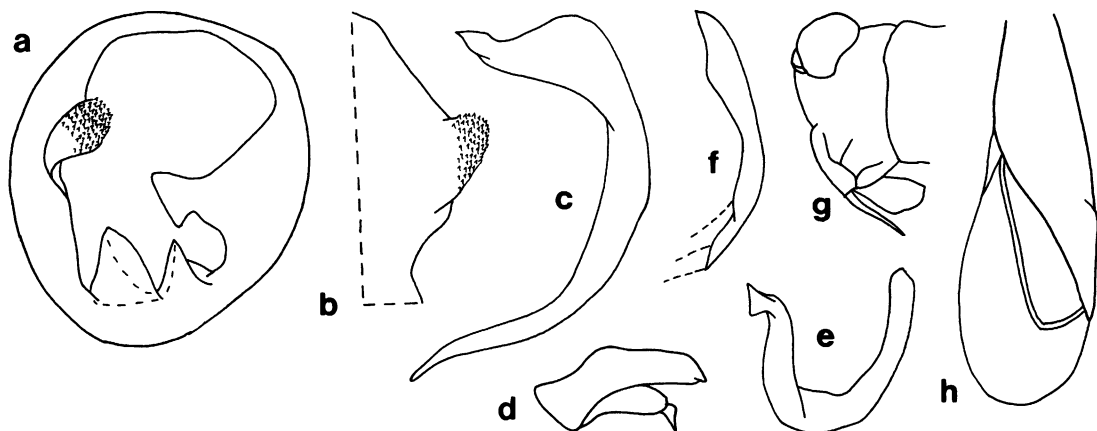


Fig. 76. *Prodromus ibbaicus*. a-f. Male genitalia. a. Genital capsule, posterior view. b. Left lateral process of genital capsule. c. Right paramere, dorsal view. d, e. Left paramere. d. Apical view. e. Dorsal view. f. Vesica, distal membranous sac omitted. g. Head, lateral view. h. Hemelytron.

slightly beyond procoxae, length 0.62–0.65. PRONOTUM. Posterior width 0.90–1.05, median length 0.62–0.69; posterior margin of disk broadly and deeply concave. HEMELYTRA. Weakly rounded laterally; cuneus terminating well anterior of apex of membrane; membranous vein strongly curved distally. LEGS. Brownish yellow, apices of tibiae and last tarsal segment usually somewhat darker, junction of femur and tibia tinged with red. GENITALIA. Figure 76. FEMALE. Not examined.

DISTRIBUTION: Equatoria Province, Sudan (fig. 62).

DISCUSSION: In the cladistic analysis of *Prodromus* species (fig. 67), *ibbaicus* is recognized as the sister species of all other taxa. It is distinguished from other members of the genus by the characters given in the diagnosis, most notably the short head (top to bottom) with weakly elevated eyes, weakly elevated pronotal disk with sparsely distributed, short setae, and the structure of the male genitalia. Although *ibbaicus* and the related species *kawandanus* are very similar to *Duducoris* species in general appearance and certain characteristics of the male genitalia (e.g., notched apex of left paramere), they are readily identified as belonging to the genus *Prodromus* by the less hypognathous head with weakly swollen genae and weakly protruding frons, long third antennal segment, and noticeably elevated posterior lobe of the pronotal disk (see generic discussion for more detailed information regarding the relationship of *Duducoris* and *Prodromus*).

SPECIMENS EXAMINED: SUDAN: **Equatoria Prov.**: 2♂, Ibba-Yambio, Apr. 16, 1963, Linnavuori (holotype and paratype? LIN). The original description of *ibbaicus* lists a male type and two female paratypes. Besides the type, which is recognized by a red “typus” label, I have seen only one male specimen from the type locality. Although this specimen does not bear a paratype label, it could be one of Linnavuori’s secondary types for which he incorrectly determined or reported the sex.

Prodromus joveri Delattre

Prodromus joveri Delattre, 1950: 151 (n. sp.).
Odhiambo, 1962: 253 (key).

DISCUSSION: Described by Delattre (1950) from the Ivory Coast and compared by the author to *thaliae*. The general structure and coloration of *joveri* as described by Delattre are similar to that of *tafoensis*. In his review of the genus *Prodromus*, Odhiambo (1962) keyed this species to a couplet including *thaliae* based on color patterns of the body and antennae, and the length of the labium. Delattre (1950) gave *Thaumatococcus danielli* Benth. as the host plant of *joveri*. I have not examined specimens of this species.

Prodromus kawandanus Odhiambo

Figures 62, 77

Prodromus kawandanus Odhiambo, 1962: 260–261, figs. 1, 32–34 (n. sp.). Linnavuori, 1975: 4 (new records).

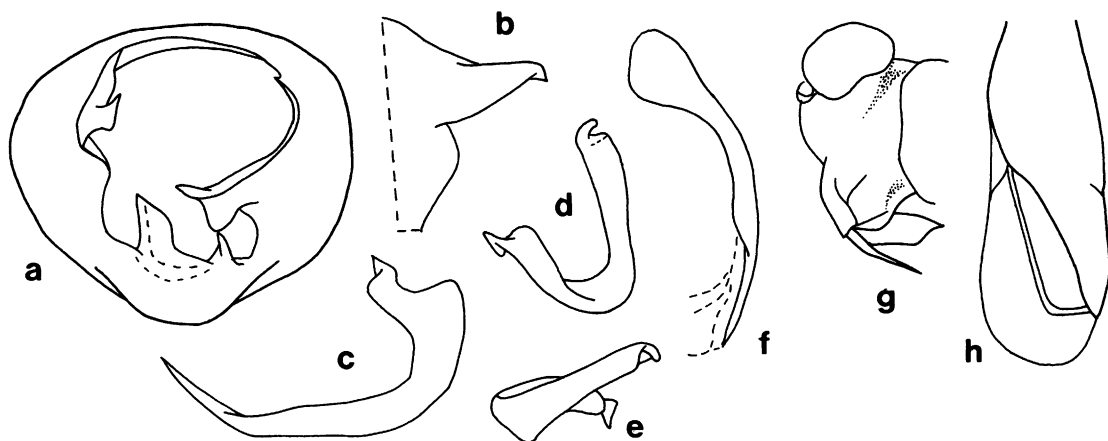


Fig. 77. *Prodromus kawandanus*. a–f. Male genitalia. a. Genital capsule, posterior view. b. Left lateral process of genital capsule. c. Right paramere, dorsal view. d, e. Left paramere. d. Dorsal view. e. Apical view. f. Vesica, distal membranous sac omitted. g. Head, lateral view. h. Hemelytron.

DIAGNOSIS: Distinguished from other African species of *Prodromus* treated here by the more convexly rounded frons (fig. 77g); reddish antennal segments I and II, length of segment I less than half that of segment II; and structure of the male genitalia, especially the very broad right lateral process of the genital aperture (fig. 77a) and left paramere with strong apical hook (fig. 77d, e). Further distinguished by the bright yellowish green general coloration, truncated apex of areolar cell, and long, narrow vesical sclerite with expanded apex (fig. 77f).

REDESCRIPTION: MALE. Length 4.32–4.50; yellowish green general coloration, fading to pale brownish yellow in aged specimens especially on pronotum. **HEAD.** Width across eyes 0.69–0.72, width of vertex 0.32–0.33; eyes weakly elevated above vertex, slightly produced posteriorly to near level of anterior margin of pronotal collar; posterior juncture of eye and head when viewed from above shallowly notched; frons moderately convex ventrad of antennal fossae; tylus moderately produced basally, junction with frons distinctly depressed; lower margin of antennal fossa at level of ventral margin of eye; antennal segments I and II red or brownish red, segments III and IV dark reddish brown; basal fourth of antennal segment I strongly narrowed; length of antennal segment I 0.41, segment II 0.88–0.90; labium reaching middle of mesosternum, length 0.74–0.75. **PRONOTUM.** Posterior width 1.03–1.05, median length 0.74; posterior margin of

disk broadly concave. **HEMELYTRA.** Weakly rounded laterally; cuneus short, slightly more than twice as long as basal width, terminating well anterior of apex of membrane; membranous vein strongly curved distally, apex of areolar cell truncate. **LEGS.** Greenish yellow, apices of tibiae and last tarsal segment yellowish brown. **GENITALIA.** Figure 77. **FE-MALE.** Length 3.75–4.15.

DISTRIBUTION: Uganda and the southern Sudan (fig. 62).

DISCUSSION: Odhiambo (1962) compared *kawandanus* to *aethiopicus*. The latter species is transferred to the genus *Duducoris* in the present paper. Within *Prodromus*, *kawandanus* seems most closely related to *ibbaicus* and other African taxa.

SPECIMENS EXAMINED: SUDAN: **Equatoria Prov.:** 2♂, 2♀, Loka forest, Apr. 8–10, 1963, Linnavuori (BMNH, LIN); 1♀, Kateri-Gilo, Mar. 18, 1963, Linnavuori (LIN). **UGANDA: Buganda Prov.:** 3♂, Kawanda, June 4, 1959 (holotype), June 13 and July 16, 1958 (paratypes), all at MV light, T. R. Odhiambo (BMNH).

Prodromus melanonotus Carvalho
Figures 62, 78

Prodromus melanonotus Carvalho, 1951: 109, fig. 6 (n. sp.). Odhiambo, 1962: 259–260, fig. 4 (desc.).

DIAGNOSIS: Recognized by the fuscous head, pronotum, scutellum, clavus, and inner margin of corium; long first antennal segment

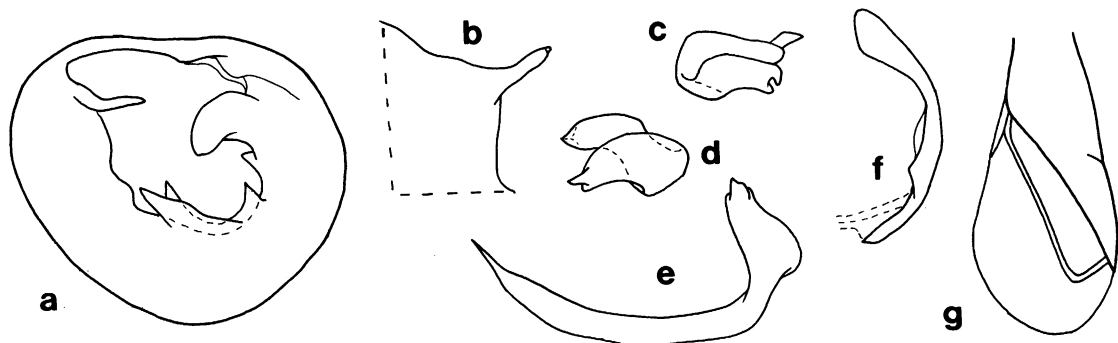


Fig. 78. *Prodrumus melanonotus*. a-f. Male genitalia. a. Genital capsule, posterior view. b. Left lateral process of genital capsule. c, d. Left paramere. c. Apical view. d. Lateral view. e. Right paramere, dorsal view. f. Vesica, distal membranous sac omitted. g. Hemelytron.

(length two-thirds that of segment II); eyes projecting posteriorly to level of anterior margin of pronotal collar; and structure of the male genitalia, especially the broad right lateral process of the genital aperture (fig. 78a) and left paramere shallowly notched apically (fig. 78c).

REDESCRIPTION: MALE. Length 4.02–4.20; dark brown or piceous general coloration; pronotal collar and most of corium yellowish white; inner margin of corium and narrow lateral stripe on embolium fuscous. **HEAD.** Width across eyes 0.74–0.75, width of vertex 0.33–0.34; eyes moderately elevated above vertex, projecting posteriorly in dorsal view to level of anterior margin of pronotal collar; frons nearly vertical ventrad of antennal fossae; tylus weakly produced basally, junction with frons very shallowly depressed; lower margin of antennal fossa well above level of ventral margin of eye; antennae dark reddish brown to nearly black, basal joint of segment I pale; length of antennal segment I 0.60–0.62, segment II 0.92–0.94; labium reaching slightly beyond apices of procoxae, length 0.72–0.76. **PRONOTUM.** Posterior width 0.98–1.02, median length 0.80–0.86; posterior lobe of disk slightly inflated, posterior margin weakly concave medially. **HEMELYTRA.** Nearly parallel-sided; cuneus terminating well anterior of apex of membrane; membranal vein strongly curved distally, apex of areolar cell truncate or very weakly acutangulate. **LEGS.** Femora pale yellow, sometimes darker brownish yellow distally, hind femora sometimes with brown to fuscous longitudinal stripe on inner-dorsal surface; tibiae and tarsi

dark yellowish brown to fuscous. **GENITALIA.** Figure 78. Vesical sclerite of nearly uniform width, not expanded on right lateral margin (fig. 78f); left paramere shallowly notched apically (fig. 78c). **FEMALE.** Length 4.05–4.18.

DISTRIBUTION: Ghana and Cameroon (fig. 62). Also reported from the Republic of the Congo (Haut Uele, Mauda) by Carvalho (1951), but I have not seen this specimen.

DISCUSSION: This species has been collected on “small marantase” (Family Marantaceae) in Ghana.

SPECIMENS EXAMINED: CAMEROON: 1♀, Mungo River, nr. Tiko, Jan. 14, 1944, H. E. Box (allotype, BMNH). **GHANA:** 1♀ [Bunjo], July 8, 1969, “pyrethrum knockdown B 5/2”, D. Leston (BMNH); 1♂, 1♀, Maase, Oct. 11, 1967, D. Leston (AMNH); 1♂, Tafo, Sept. 8, 1966, UV trap, D. Leston (AMNH); 1♂, Tafo, Sept. 12, 1967, D. Leston (AMNH); 1♂, 1♀, Tafo, Sept. 7, 1967, “small marantase,” D. Leston (AMNH); 1♂ [9 mi N] of Cape Coast, Sept. 9, 1943, H. E. Box (holotype, BMNH).

Prodrumus mindanao, new species

Figures 64, 79

DIAGNOSIS: Similar to *bakeri* in body size and structure of the head but distinguished by the brownish yellow first antennal segment, sometimes lightly tinged with red distally; pronotal collar without red markings laterally; and by the structure of the male genitalia, especially the short right paramere (fig. 79c) and vesical sclerite with small recurved spine apically (fig. 79f).

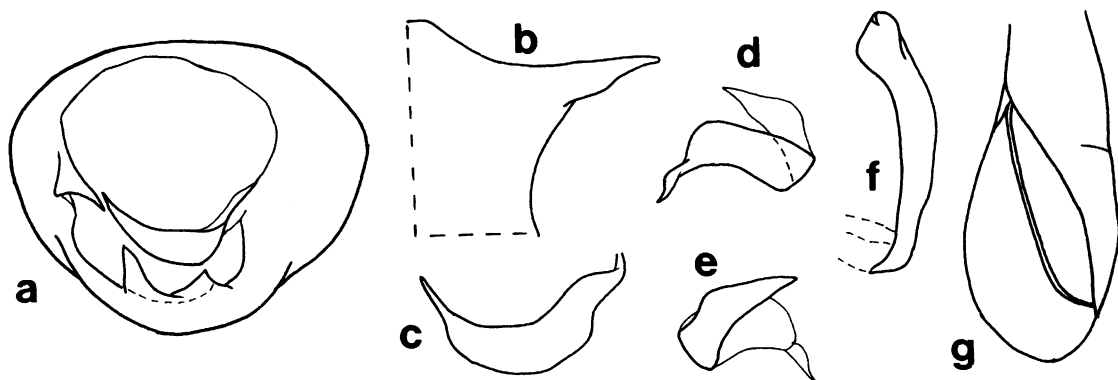


Fig. 79. *Prodromus mindanao*. a-f. Male genitalia. a. Genital capsule, posterior view. b. Left lateral process of genital capsule. c. Right paramere, dorsal view. d, e. Left paramere. d. Lateral view. e. Apical view. f. Vesica, distal membranous sac omitted. g. Hemelytron.

DESCRIPTION: MALE. Length 3.62–3.85; brownish yellow general coloration. **HEAD.** Width across eyes 0.68–0.71, width of vertex 0.33–0.35; eyes weakly elevated above vertex, well separated anteriorly from pronotal collar; frons weakly convex ventrad of antennal fossae; base of tylus moderately produced; lower margin of antennal fossa slightly above level of ventral margin of eye; antennal segment I brownish yellow, sometimes tinged with red distally, length 0.52–0.57, basal third strongly narrowed; antennal segments II–IV brown or reddish brown, length of segment II 0.78–0.82; labium reaching between procoxae or slightly beyond, length 0.54–0.61. **PRONOTUM.** Posterior width 0.79–0.80, median length 0.62–0.66; posterior margin of disk broadly concave medially. **HEMELYTRA.** Nearly straight laterally; cuneus terminating anteriorly of apex of membrane by distance equal to dorsal length of eye; membranal vein moderately curved distally. **LEGS.** Pale yellow, tarsi sometimes more brownish yellow. **GENITALIA.** Figure 79. **FEMALE.** Length 3.55–3.95.

ETYMOLOGY: Named for its occurrence on Mindanao, Philippine Islands.

DISTRIBUTION: Mindanao and Samar, Philippine Islands (fig. 64).

HOLOTYPE ♂: PHILIPPINE ISLANDS: **Mindanao:** Surigao, C. F. Baker (USNM).

PARATYPES: PHILIPPINE ISLANDS: **Mindanao:** 3♂, 1♀, same data as holotype (AMNH, USNM); 3♂, 1♀, Agusan, 10 km SE of S. Francisco, Nov. 13, 1959, L. W. Quate (BISH); 1♂, Agusan, Los Arcos, Nov. 19–23, 1959,

malaise trap, L. Quate and C. Yoshimoto (BISH); 1♀, Surigao, L. Mainit, Nov. 24–Dec. 1, 1959, L. W. Quate (BISH).

ADDITIONAL SPECIMENS: PHILIPPINE ISLANDS: **Mindanao:** 2♂, 1♀, Misamis Oriental, Dinawihan Gingoog, 26 km E of Gingoog City, 100–300 m, Aug. 14, 21, and 22, 1965, L. Torrevillas (BISH). **Samar Is.:** 1♂, C. F. Baker Coll. (USNM). The above male specimens differ from the holotype in having the left tergal process of the genital capsule broader and less strongly curved distally, and the right tergal process with long, acuminate apex rather than short and broadly rounded as in the type and paratypes. However, because they possess the diagnostic short right paramere and vesical sclerite with recurved apical spine and unexpanded right lateral margin, I am treating these specimens and the single female listed above as conspecific with the designated holotype.

Prodromus nigrus Carvalho

Figures 58, 65, 80

Prodromus nigrus Carvalho, 1981a: 83, figs. 179–182 (n. sp.).

DIAGNOSIS: Recognized by the fuscous to nearly black head, antennae, thorax, clavus and embolium of hemelytra, and venter; large strongly elevated eyes, projecting posteriorly to slightly beyond level of anterior margin of pronotal collar; inflated posterior lobe of pronotal disk; and structure of the male genitalia, especially the secondary spines on lateral processes of genital aperture (fig. 80a, b).

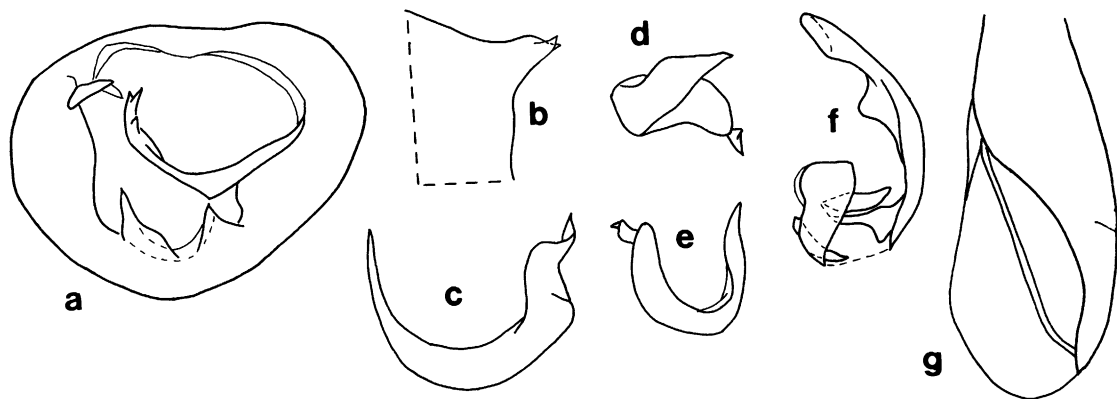


Fig. 80. *Prodromus nigrus*. a–f. Male genitalia. a. Genital capsule, posterior view. b. Left lateral process of genital capsule. c. Right paramere, dorsal view. d, e. Left paramere. d. Apical view. e. Dorsal view. f. Vesica (distal membranous sac omitted) with phallobase. g. Hemelytron.

REDESCRIPTION: MALE. Length 4.45–4.60; head, thorax, scutellum, most of clavus, embolium, and outer margin of cuneus fuscous to nearly black; venter brown to fuscous with reddish tinge laterally; anterolateral angle of clavus, corium, and cuneus translucent greenish gray; corium bordering apex of clavus tinged with fuscous. **HEAD.** Width across eyes 0.88–0.90, width of vertex 0.39–0.41; eyes large, occupying slightly more than one-third of head height in lateral view, strongly elevated above vertex, projecting posteriorly to slightly beyond level of anterior margin of pronotal disk; posterior juncture of eye and head distinctly notched in dorsal view; frons weakly convex ventrad of antennal fossae; tylus moderately produced basally; lower margin of antennal fossa well above level of ventral margin of eye; antennae dark brown to black, basal third of segment I strongly narrowed; length of antennal segment I 0.65–0.69, segment II 1.02–1.05; labium reaching slightly beyond apices of procoxae, length 0.86–0.88. **PRONOTUM.** Posterior lobe of disk noticeably inflated, posterior margin weakly concave medially. **HEMELYTRA.** Moderately rounded laterally; cuneus reaching near apex of membrane; membranal vein weakly curved distally. **LEGS.** Pale greenish yellow, tibiae brown or yellowish brown distally, last tarsal segment brown. **GENITALIA.** Figure 80. **FE-MALE.** Length 4.50.

DISTRIBUTION: New Guinea (fig. 65).

SPECIMENS EXAMINED: PAPUA NEW GUINEA: **Central Prov.:** 3♂, 1♀, Aieme River, July 7,

1985, ex. *Heliconia* [?], J. W. Ismay (AMNH, BCIE). **INDONESIA: West Irian:** 1♂, Waris, SE of Hollandia, 450–500 m, Aug. 24–31, 1959, T. C. Maa (holotype, BISH); 1♂, SW Vogelkop, Fak Fak Agric. Exp. Sta., June 11, 1959, light trap, J. L. Gressitt (paratype, BISH).

Prodromus nimbus Delattre

Prodromus nimbus Delattre, 1950: 151–152, fig. 4 (n. sp.). Odhiambo 1962: 252 (key).

DISCUSSION: Described by Delattre (1950) from Guinea, west Africa. The dorsal color pattern described by Delattre and shown in his figure 4 is similar to that of *melanonotus*, except in *nimbus* the head and anterior lobe of the pronotum are paler, the inner margin of the cuneus is not darkened, and the hemelytral membrane is suffused with fuscous. Odhiambo (1962) included *nimbus* in his key to *Prodromus* species, using relative lengths of the antennal segments and color patterns of the head, antennae, and body to distinguish it from other taxa. I have not examined specimens of *nimbus*.

Prodromus novoguineensis, new species Figures 65, 81

DIAGNOSIS: Similar to *nigrus* in size and structure but easily distinguished by the uniform brownish yellow coloration, less strongly elevated eyes, weakly convex posterior lobe of pronotal disk, and structure of the male genitalia. Distinguished from *oculatus* by the

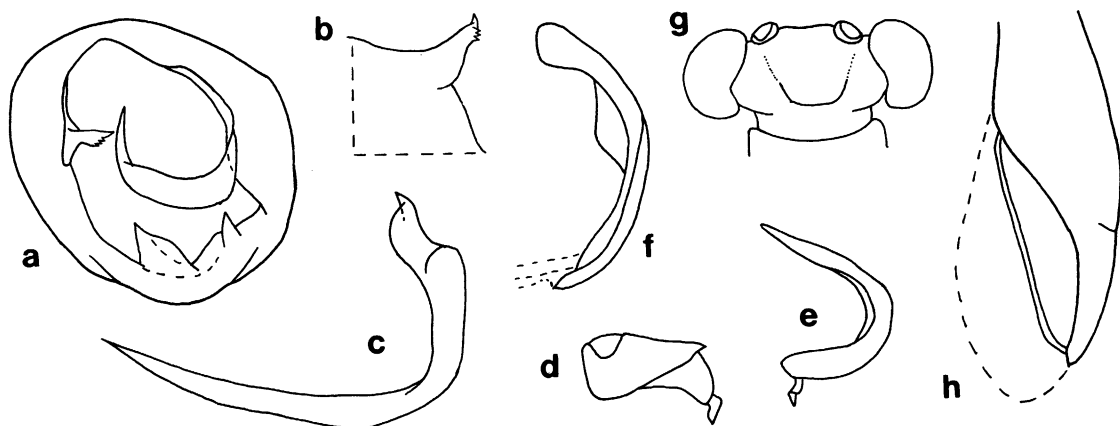


Fig. 81. *Prodomus novoguineensis*. a–f. Male genitalia. a. Genital capsule, posterior view. b. Left lateral process of genital capsule. c. Right paramere, dorsal view. d, e. Left paramere. d. Apical view. e. Dorsal view. f. Vesica, distal membranous sac omitted. g. Head, dorsal view. h. Hemelytron, most of membrane missing.

smaller body size, moderately elevated eyes, pale antennae—segment I narrowed on basal third only, labium only slightly exceeding apices of procoxae, and structure of the male genitalia.

DESCRIPTION: MALE. Length approx 4.30 (hemelytral membrane damaged); pale brownish yellow general coloration. **HEAD.** Width across eyes 0.82, width of vertex 0.41; eyes moderately elevated above vertex, projecting posteriorly to level of anterior margin of pronotal collar; posterior juncture of eye and head notched in dorsal view; frons weakly convex ventrad of antennal fossae; tylus moderately produced basally; lower margin of antennal fossa slightly above level of ventral margin of eye; antennal segment I pale brownish yellow, basal third strongly narrowed, length 0.70; antennal segment II yellowish brown, darker brown distally, length 1.12; labium reaching slightly beyond apices of procoxae, length 0.66. **PRONOTUM.** Posterior width 0.96, median length 0.81. **HEMELYTRA.** Moderately rounded laterally, slightly less so than for *nigrus*; cuneus reaching near apex of membrane; membranal vein weakly curved distally. **LEGS.** Pale brownish yellow, last tarsal segment brown. **GENITALIA.** Figure 81. Right lateral margin of vesical sclerite broadly expanded (fig. 81f). **FE-MALE.** Unknown.

ETYMOLOGY: Named for its occurrence in New Guinea.

DISTRIBUTION: Western New Guinea (fig. 65).

HOLOTYPE ♂: INDONESIA: **West Irian:** Waris, S of Hollandia, 450–500 m, Aug. 24–31, 1959 (BISH).

Prodomus oculatus (Poppius),
new combination

Figures 59–61, 65, 82

Prodromopsis oculatus Poppius, 1912a: 10–11 (n. sp.). Carvalho, 1980: 656 (note, type); 1981a: 81–82, figs. 175–178 (renewed comb., descr., lectotype desig.).

Sinervus oculatus: Carvalho, 1948: 191 (n. comb.).

Prodromus pedunculatus Odhiambo, 1962: 263–264, figs. 10, 39–42 (n. sp.). **NEW SYNONYMY.**

DIAGNOSIS: Recognized by the large body size, strongly elevated eyes (fig. 82h), nearly vertical frons (fig. 82g), basal half of antennal segment I strongly narrowed, labium reaching apex of mesosternum, cuneus reaching near apex of hemelytral membrane (fig. 82i), and structure of the male genitalia.

REDESCRIPTION: MALE. Length 4.95–6.00; brownish yellow general coloration. **HEAD.** Width across eyes 0.81–0.85, width of vertex 0.39–0.40; eyes strongly elevated above vertex, not noticeably produced posteriorly; frons nearly vertical ventrad of antennal fossae; tylus slightly produced basally, junction with frons narrowly depressed; lower margin of

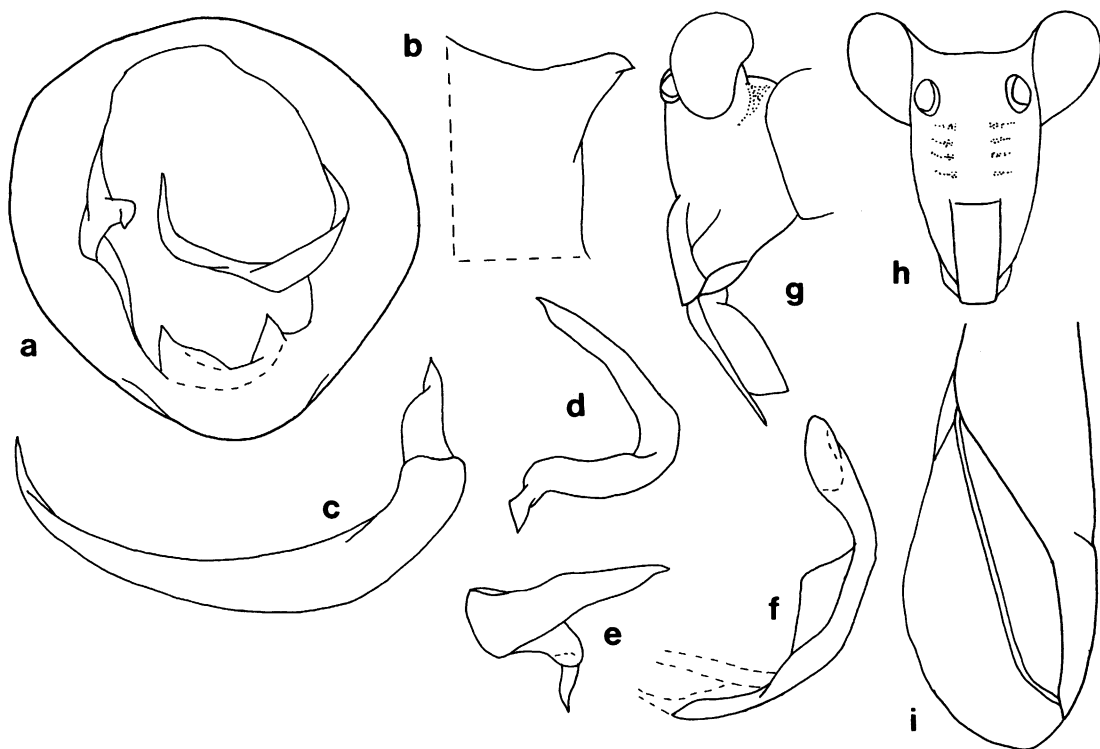


Fig. 82. *Prodromus oculatus*. a-f. Male genitalia. a. Genital capsule, posterior view. b. Left lateral process of genital capsule. c. Right paramere, dorsal view. d, e. Left paramere. d. Dorsal view. e. Apical view. f. Vesica, distal membranous sac omitted. g, h. Head. g. Lateral view. h. Anterior view. i. Hemelytron.

antennal fossa well above level of ventral margin of eye; antennal segment I strongly narrowed on basal half, pale yellow, distal third to one-half brown or dark reddish brown; antennal segments II-IV dark reddish brown to nearly black; length of antennal segment I 0.64-0.77, segment II 1.26-1.47; labium reaching apex of mesosternum or slightly beyond, length 1.02-1.28. PRONOTUM. Posterior width 1.12-1.28, median length 0.84-0.98; posterior margin of disk broadly concave medially. HEMELYTRA. Weakly rounded laterally; cuneus reaching near apex of hemelytral membrane; membranal vein weakly curved distally. LEGS. Pale yellow or brownish yellow, tarsi and apices of tibiae usually darker brown or yellowish brown. GENITALIA. Figure 82. Right paramere very robust, weakly curved (fig. 82c); vesical sclerite broadly expanded on right lateral margin (fig. 82f); distal membranous sac of vesica with surface spinules, especially noticeable

on basal third of sac. FEMALE. Length 5.02-5.95.

DISTRIBUTION: New Guinea, Bismark Archipelago, Solomon Islands (fig. 65).

DISCUSSION: Comparison of the holotype and single paratype of *Prodromus pendunculatus* Odhiambo in the BMNH with the lectotype (HNHM) and many other specimens of *Prodromus oculatus* (Poppius) reveals that the two names apply to a single taxon. Since the Poppius name has priority, *pedunculatus* Odhiambo is assigned the status of junior synonym.

Prodromus oculatus is commonly collected on banana, *Musa* spp., and also occurs regularly in light trap catches.

SPECIMENS EXAMINED: INDONESIA: West Irian: 1♂, 1♀, Bodem, July 10-17, 1959, T. C. Maa (BISH); 1♀, Bodem, 100 m, 11 km SE of Oerberfaren, Dec. 16, 1959, MV light trap, T. C. Maa (BISH); 1♀, Hollandia-Binnen, 100 m, Nov. 24, 1958, light trap, J. L.

Gressitt (BISH); 1♂, Humboldt Bay Dist., Bewani Mts., 400 m, July 1937, W. Stuber (*pedunculatus* paratype, BMNH); 1♀, Japen Is., Samberbaba, Dawai R., Oct. 29, 1962, light trap, H. Holtmann (BISH); 1♂, 2♀, Oransbari, NW of Geelvink Bay, Feb. 10, 1963, light trap, R. Straatman (BISH); 1♂, 1♀, River Tor (mouth), 4 km E of Hol Maffen, July 19, 1959, T. C. Maa (BISH); 1♂, Sabron, Cyclops Mts., 930 ft, June 1936, L. E. Cheesman (*pedunculatus* holotype, BMNH); 1♀, Waris, S of Hollandia, 450–500 m, Aug. 8–15, 1959, T. C. Maa (BISH); Vogelkop: 1♀, Danowaria, June 2, 1959, ex. banana, J. L. Gressitt (BISH) and 1♀, Fak Fak Agric. Exp. Sta., June 11, 1959, light trap, J. L. Gressitt (BISH). **PAPUA NEW GUINEA: Central Prov.:** 1♀, Aieme R., July 7, 1985, ex. *Heliconia* [?], J. W. Ismay (BCIE); 1♀, Aroa Plantation, May 15, 1957, ex. banana, J. H. Barrett (BMNH); 2♂, 1♀, Laloki, Aug. 25, 1982, ex. banana, J. W. Ismay (BCIE); 1♂, 1♀, *ibid.*, except July 20, 1984 (BCIE); 3♀, Rigo District, Sept. 1928, Pemberto (BISH). **East New Britain Prov.:** Gazelle Peninsula: 1♀, Gaulim, 140 m, Oct. 21–27, 1962, malaise trap, J. Sedlacek (BISH); 1♀, Malmalwan-Vunakanau, May 11–13, 1956, light trap, J. L. Gressitt (BISH). **East Sepik Prov.:** 1♀, Maprik, Oct. 26, 1957, J. Smart (BMNH). **Madang Prov.:** 1♂, Astrolabe Bai, Erima [Harbor], Biro (*oculatus* lectotype, HNHM); 1♀, Finisterre Range, Saidor-Gabumi, July 1–21, 1958, W. W. Brandt (BISH). **Milne Bay Prov.:** 1♀, Fergusson Is., Deidei, Gomwa Bay, 0–20 m, July 2–6, 1956, L. J. Brass (Archbold Exped. V, AMNH); 2♂, 9♀, Fergusson Is., Iamelele, 15 m, May 25–29, 1956, L. J. Brass (Arch. Exped. V, AMNH); 5♂, 3♀, Cape Vogel Peninsula, Menapi, 0–30 m, Mar. 21–May 4, 1953, G. M. Tate (Arch. Exped. IV, AMNH); 2♂, Misima Is., Narian, 0–50 m, Aug. 3&9, 1956, L. J. Brass (Arch. Exped. V, AMNH); 1♀, Mamai Plantation, E of Port Glasgow, 150 m, Feb. 7, 1965, light trap, R. Straatman (BISH). **Morobe Prov.:** 1♀, Buso R., E of Lae, 100 m, Sept. 15, 1955, J. L. Gressitt (BISH); 10♂, 6♀, 3 nymphs, Buso, Sept.–Nov. 1979, J. Martin (BMNH); 3♀, Finschhafen, July 20, 1960, ex. banana, A. Catley (BMNH); 1♂, 1♀, Huon Gulf, May 22–June 19, 1937, ex. banana, J. L. Froggatt (BMNH); 1♀, Kilolo Crk., 1070 m, 7 km W of Wau, Aug. 15–25, 1967, Tawi

(BISH); 1♂, 6♀, Mondo, 5000 ft, Feb. 1934, L. E. Cheesman (BMNH); 1♀, Salawaket Range, Tuwep, 1350 m, Sept. 9, 1956, E. J. Ford, Jr. (BISH); 1♂, Wampit R. Valley, Gurakor, 45 mi W of Lae, 670 m, May 5–8, 1959, L. J. Brass (Arch. Exped. VI, AMNH); 2♂, 10♀, Wau, 1200 m [month ?], 1979, ex. *Musa* sp., W. C. Gagne (BISH). **New Ireland Prov.:** 1♂, Lemkamin, Apr. 22, 1962, Noona Dan Exped. (Copenhagen Museum). **North-eastern Prov.:** 13♂, 16♀, Kokoda, 1200 ft, Aug. 1933, L. E. Cheesman (BMNH); 1♂, 1♀, Kokoda, 400 m, Nov. 16–20, 1955, light trap, J. and M. Sedlacek (BISH); 1♂, 5♀, Kokoda-Pitoki, 450 m, Mar. 24, 1956, J. L. Gressitt (BISH); 1♂, 1♀, Mamba Plantation, Mar. 2, 1983, ex. banana, J. W. Ismay (BCIE). **Western Highlands Prov.:** Upper Jimmi Valley: 1♀, Korop, 1300 m, July 12, 1955, J. L. Gressitt (BISH) and 1♀, Tsenga, 1200 m, July 14, 1955, J. L. Gressitt (BISH). [Province unknown]: 1 specimen (abdomen missing), “Ighibirei, Loria, VII. VIII [18]90” (*oculatus* syntype, UZMH). **SOLOMON ISLANDS: Florida Group:** 3♂, Gairava, Sept. 14, 1960, light trap, C. W. O’Brien (BISH). **Guadalcanal Is.:** 1♂, 1♀, Tambalia, 30 km W of Honiara, May 20, 1964, light trap, R. Straatman (BISH); 1♀, Tapenanje, Dec. 10–15, 1953, J. D. Bradley (BMNH). **New Georgia Group:** 1♂, Vella Lavella Is., Ulo Crater, 10 m, Dec. 20, 1963, at light, P. Shanahan (BISH). **Santa Ysabel Is.:** 1♂, Buala, June 25, 1960, light trap, C. W. O’Brien (BISH); 1♂, Sukapisu, 900 m, June 19, 1960, light trap, C. W. O’Brien (BISH); 1♂, Tatamba, 0–50 m, Sept. 6, 1964, light trap, R. Straatman (BISH).

Prodromus pelagus, new species

Figures 63, 83

DIAGNOSIS: Distinguished from other small species of the Philippines-Borneo region by having the eyes projecting posteriorly to slightly beyond level of anterior margin of pronotal collar, with posterior juncture of eye and head distinctly notched in dorsal view, and by the structure of the male genitalia, especially the short, broad right paramere (fig. 83e) and small, dorsally bifurcate left process of the genital capsule (fig. 83b).

DESCRIPTION: MALE. Length 3.80; pale brownish yellow general coloration, hemel-

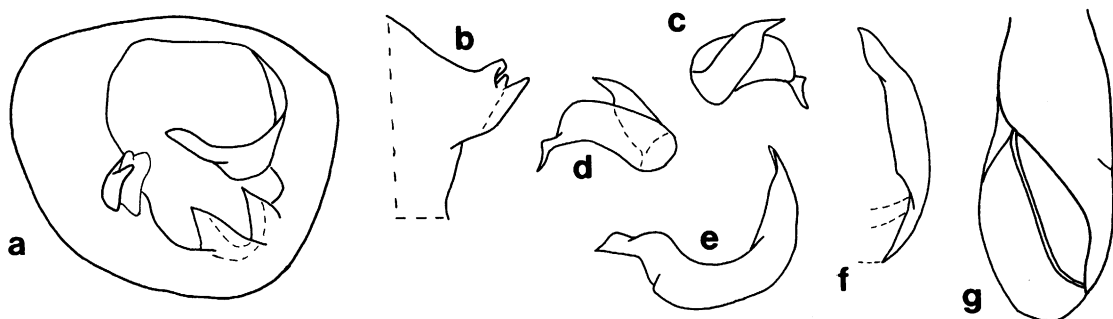


Fig. 83. *Prodromus pelagus*. a-f. Male genitalia. a. Genital capsule, posterior view. b. Left lateral process of genital capsule. c, d. Left paramere. c. Apical view. d. Lateral view. e. Right paramere, ventral view. f. Vesica, distal membranous sac omitted. g. Hemelytron.

yttra with faint greenish tinge. HEAD. Width across eyes 0.75, width of vertex 0.35; eyes moderately elevated above vertex and projecting posteriorly to slightly beyond level of anterior margin of pronotal collar; antennal fossa well above level of ventral margin of eye; frons weakly convex ventrad of antennal fossae; tylus moderately produced basally, junction with frons noticeably depressed; antennal segment I brownish yellow, basal third strongly narrowed, length 0.59; antennal segment II brown, broken distally; labium reaching middle of mesosternum, length 0.75. PRONOTUM. Posterior width 0.93, median length 0.66; posterior margin of disk broadly concave. HEMELYTRA. Weakly rounded laterally; cuneus terminating well anterior of apex of membrane; membranal vein strongly curved distally, apex of areolar cell subtruncate. LEGS. Pale brownish yellow, apices of tibiae and last tarsal segment darker yellowish brown. GENITALIA. Figure 83. FEMALE. Length 3.80; length of antennal segment II 1.00.

ETYMOLOGY: Named for the type locality; a noun in apposition.

DISTRIBUTION: Sarawak, Malaysia (fig. 63).

HOLOTYPE ♂: MALAYSIA: **Sarawak**: Nanga Pelagus, nr. Kapit, 180–585 m, Aug. 7–14, 1958, T. C. Maa (BISH).

PARATYPE: MALAYSIA: **Sarawak**: 1♀, Bau Lake Area, August 29–30, 1958, T. C. Maa (BISH).

Prodromus philippinensis (Poppius),
new combination

Figures 63, 84

Prodromopsis philippinensis Poppius, 1915b: 83–84 (n. sp.). Carvalho, 1981a: 80–81 (renewed comb.).

Sinervus philippinensis: Carvalho, 1948: 191 (n. comb.).

DIAGNOSIS: Recognized by the grayish green general coloration; strongly elevated eyes; apically truncate areolar cell (fig. 84g); and structure of the male genitalia, especially the short, strongly curved right paramere (fig. 84b) and left process of genital aperture with broad, preapical tooth (fig. 84a).

REDESCRIPTION: MALE. Length 4.30–4.50; slightly shiny grayish green general coloration (fading to greenish yellow in some specimens). HEAD. Width across eyes 0.70–0.72, width of vertex 0.33–0.35; eyes strongly elevated above vertex, not noticeably produced posteriorly; posterior juncture of eye and head weakly notched; frons ventrad of antennal fossae nearly vertical; tylus weakly produced basally, junction with frons very shallowly depressed; lower margin of antennal fossa near level of ventral margin of eye; antennae dark reddish brown, segment I narrowly pale basally and sometimes lighter yellowish brown dorsally; length of antennal segment I 0.48–0.50, segment II 0.88–0.94; labium reaching middle of mesosternum or slightly beyond, length 0.75–0.79. PRONOTUM. Posterior width 1.08–1.10, median length 0.74–0.78; posterior margin of disk strongly concave medially. HEMELYTRA. Weakly rounded laterally; cuneus terminating well anterior of apex of membrane; membranal vein strongly curved distally, apex of areolar cell truncate. LEGS. Pale greenish yellow, last tarsal segment brown. GENITALIA. Figure 84. Vesical sclerite moderately expanded on right lateral margin (fig. 84e). FEMALE. Length 4.40–4.75.

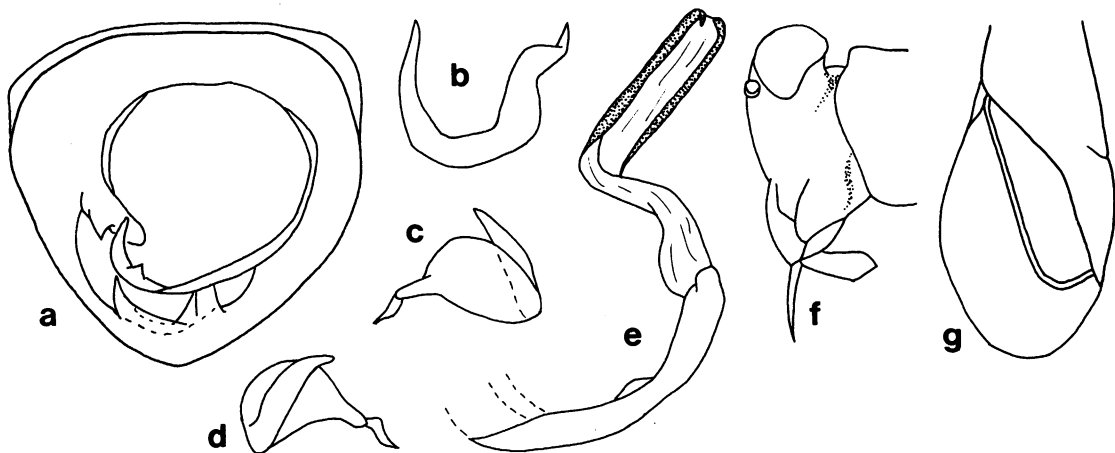


Fig. 84. *Prodromus philippinensis*. a–e. Male genitalia. a. Genital capsule, posterior view. b. Right paramere, dorsal view. c, d. Left paramere. c. Lateral view. d. Apical view. e. Vesica. f. Head, lateral view. g. Hemelytron.

DISTRIBUTION: Northern Philippine Islands (fig. 63).

DISCUSSION: The original description of *philippinensis* states that a single female example was deposited in the Helsinki Museum. I have examined this specimen which bears the following label data: Label 1, "Los Banos, P. I., Baker"; 2, "*Prodromopsis philippinensis* n. sp." [handwritten]; 3, "Mus. Zool. H: fors, Spec. typ. No. 10086, *Prodromopsis philippinensis* Popp."; 4 (here added), "HOLOTYPE, *Prodromopsis philippinensis* Poppius, det. by G. M. Stonedahl, 1986." One female and two male specimens with the same label data as the holotype, except without the handwritten identification label, also are deposited in the UZMH. These specimens apparently were not examined by Poppius when he described *philippinensis*.

ADDITIONAL SPECIMENS: PHILIPPINE ISLANDS: **Luzon:** 1♂, Mt. Makiling, C. F. Baker (UZMH). [Province unknown]: 1♀, Imugin, N. Viscaya, C. F. Baker (UZMH).

***Prodromus ranau*, new species**

Figures 63, 85

DIAGNOSIS: Similar to *apoensis* and *subflavus* but distinguished by the slightly larger body size; broader head and vertex; tylus and frons ventrad of antennal fossae nearly vertical with junction between tylus and frons indistinct; lower margin of antennal fossa well above level of ventral margin of eye; posterior margin of pronotal disk weakly concave;

and structure of the male genitalia, especially the extremely long right paramere (fig. 85c).

DESCRIPTION: MALE. Length 5.25; yellowish brown general coloration, head somewhat darker, tylus extensively tinged with red. **HEAD.** Width across eyes 0.91, width of vertex 0.45; eyes strongly elevated above vertex; frons nearly vertical ventrad of antennal fossae; tylus not produced basally, junction with frons indistinct; lower margin of antennal fossa well above level of ventral margin of eye; antennae missing; labium reaching between procoxae, length 0.81. **PRONOTUM.** Posterior width 1.11, median length 0.89; posterior margin of disk very weakly concave medially. **HEMELYTRA.** Weakly rounded laterally; cuneus terminating well anterior of apex of membrane; membranal vein strongly curved distally, apex of areolar cell subtruncate. **LEGS.** Brownish yellow, last tarsal segment brown. **GENITALIA.** Figure 85. **FEMALE.** Unknown.

ETYMOLOGY: Named for the type locality; a noun in apposition.

DISTRIBUTION: North Borneo (fig. 63).

HOLOTYPE ♂: MALAYSIA: **Sabah:** Ranau, 500 m, Oct. 8–18, 1958, L. W. Quate and T. C. Maa (BISH).

***Prodromus sabah*, new species**

Figures 63, 86

DIAGNOSIS: Similar to *bakeri* and *mindanao*, but distinguished by slightly larger body size; broader head and pronotum; longer sec-

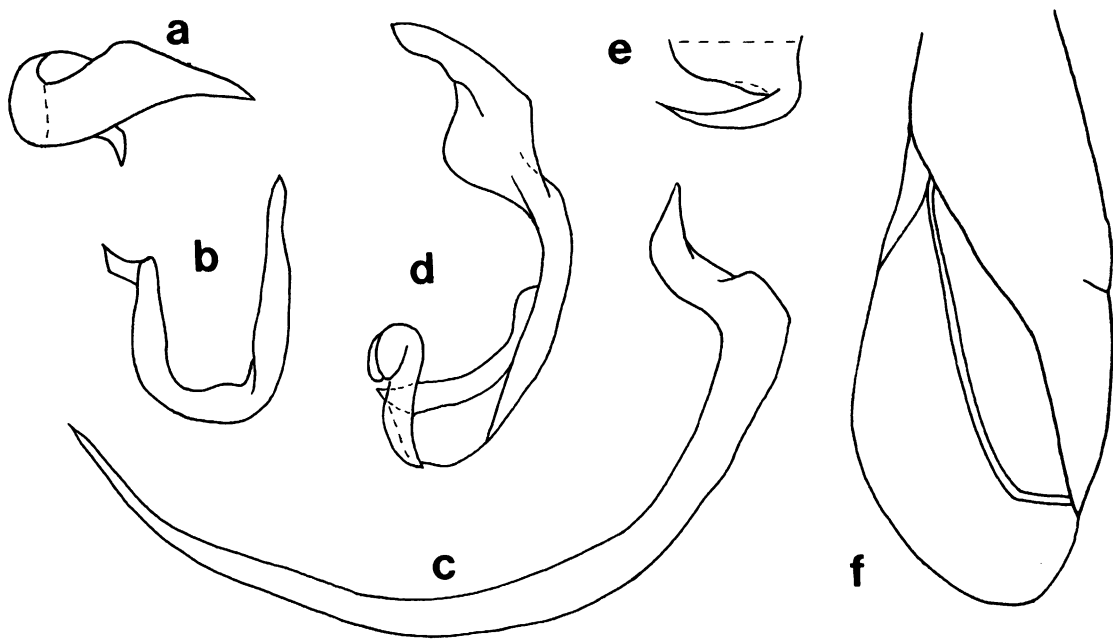


Fig. 85. *Prodrumus ranau*. a–e. Male genitalia. a, b. Left paramere. a. Apical view. b. Dorsal view. c. Right paramere, dorsal view. d. Vesica (distal membranous sac omitted) with phallobase. e. Right process of genital capsule, dorsal view. f. Hemelytron.

ond antennal segment; and by the structure of the male genitalia, most notably the strongly curved right paramere (fig. 86d) and left paramere abruptly expanded distally (fig. 86e, f).

DESCRIPTION: MALE. Length 4.15–4.32; brownish yellow to nearly grayish yellow general coloration. **HEAD.** Width across eyes 0.76–0.78, width of vertex 0.38; eyes weakly elevated above vertex, well separated anteriorly from pronotal collar; frons weakly convex ventrad of antennal fossae; tylus moderately produced basally; lower margin of antennal fossa at level of ventral margin of eye; antennal segment I yellowish brown or brown, darker distally, length 0.56–0.61, basal third strongly narrowed; antennal segments II–IV dark brown or reddish brown, length of segment II 0.98–1.05; labium reaching slightly beyond apices of procoxae, length 0.64–0.66. **PRONOTUM.** Posterior width 1.01–1.04, median length 0.76–0.78; posterior margin of disk weakly concave. **HEMELYTRA.** Weakly rounded laterally; cuneus terminating anteriorad of apex of membrane by distance equal to dorsal length of eye; membranal vein moderately curved distally. **LEGS.** Pale brownish

yellow, apices of tibiae and last tarsal segment sometimes darker yellowish brown. **GENITALIA.** Figure 86. **FEMALE.** Length 4.12–4.50.

ETYMOLOGY: Named for its occurrence in Sabah, Malaysia.

DISTRIBUTION: North Borneo (fig. 63).

HOLOTYPE ♂: MALAYSIA: **Sabah:** Sandakan, Nov. 26, 1958, T. C. Maa (BISH).

PARATYPES: MALAYSIA: **Sabah:** 3♀, same data as holotype; 1♂, Liawan, Jan. 14–19, 1959, sweeping, T. C. Maa (BISH); 3♂, 2♀ (Oct. 8–18, L. W. Quate), 1♂, 1♀ (Sept. 28–30), 2♀ (Sept. 28–Oct. 7), all Ranau, 500 m, 1958, T. C. Maa (AMNH, BISH); 1♀, Paring, Ranau, Oct. 10, 1958, light trap, L. W. Quate (BISH); 1♀, W Coast Residency, Ranau, 500 m, Sept. 28–Oct. 7, 1958, T. C. Maa (BISH); 3♂, 1♀, *ibid.*, except Oct. 8–11, 1958 and with “8 mi N Paring Hot Springs, sweeping” added to label data (BISH); 2♀, Tawau District, Kalabakan Primary Forest, Nov. 8–15, 1958, T. C. Maa (BISH).

Prodrumus subflavus Distant

Figures 64, 87

Prodrumus subflavus Distant, 1904b: 437, fig. 282 (n. sp.). Poppius, 1911: 4 (note). Odhiambo,

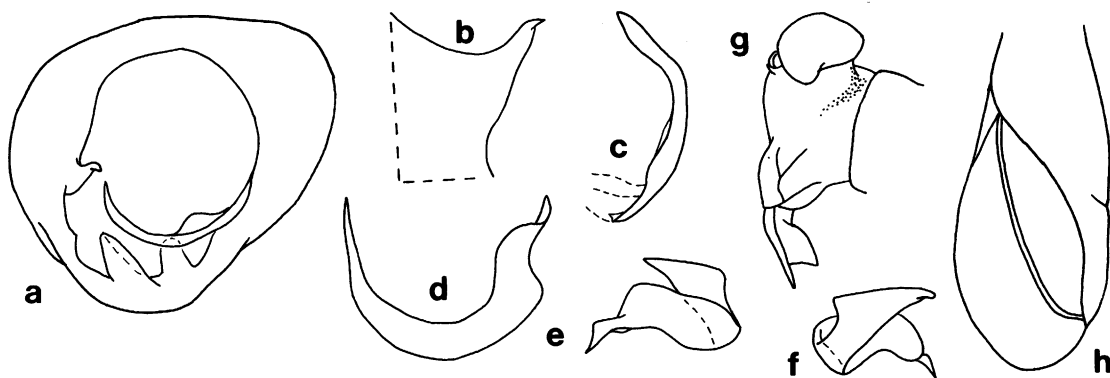


Fig. 86. *Prodromus sabah*. a-f. Male genitalia. a. Genital capsule, posterior view. b. Left lateral process of genital capsule. c. Vesica, distal membranous sac omitted. d. Right paramere, dorsal view. e, f. Left paramere. e. Lateral view. f. Apical view. g. Head, lateral view. h. Hemelytron.

1962: 253-254, figs. 2, 19-21 (descr.). Carvalho, 1981b: 6 (note, type).

DIAGNOSIS: Recognized by the strongly elevated eyes; nearly vertical frons and weakly protruding tylus base; short first antennal segment, only half as long as second segment; antennal coloration; labium reaching apex of mesosternum; posterior margin of pronotal disk broadly, subangular concave; membranal vein strongly curved distally (fig. 87g); and structure of the male genitalia.

REDESCRIPTION: MALE. Length 4.60-4.62; brownish yellow general coloration, hemelytra with faint greenish tinge. **HEAD.** Width across eyes 0.68-0.70, width of vertex 0.34-0.36; eyes strongly elevated above vertex, weakly projecting posteriorly; frons nearly vertical ventrad of antennal fossae, tylus weakly produced basally; lower margin of antennal fossa at level of ventral margin of eye, antennae brown or yellowish brown, segment I suffused with fuscous laterally, basal and apical fourths of segment II, distal third of segment III, and broad band below middle and another before apex of segment IV reddish; length of antennal segment I 0.46, basal third strongly narrowed; length of antennal segment II 0.96-0.98; length of labium 0.81-0.88. **PRONOTUM.** Posterior width 1.10-1.11, median length 0.72-0.76; posterior margin of disk broadly subangular concave. **HEMELYTRA.** Weakly rounded laterally; cuneus short, outer margin not noticeably curved, terminating well anterior of apex of membrane; membranal vein very strongly

curved distally, areolar cell truncate to weakly acutangulate. **LEGS.** Pale brownish yellow, last tarsal segment brown. **GENITALIA.** Figure 87. Genital aperture with very long, curving right process (fig. 87a) and short, blunt left process (fig. 87b); basal third of distal membranous sac of vesica with numerous surface spinules (fig. 87c). **FEMALE.** Length 4.55

DISTRIBUTION: Sri Lanka and Vietnam (fig. 64).

LECTOTYPE ♂ (new designation): Label 1, "Peradeniya, Ceylon, 12-1901"; 2, "Distant Coll., 1911-383"; 3, "*Prodromus subflavus* Dist." [handwritten]; 4, "Syntype" [blue-bordered disk] (BMNH).

ADDITIONAL SPECIMENS: VIETNAM: 1♂, 1♀, M'Drak, E of BanMeThuot, 400-600 m, Dec. 8-19, 1960, C. M. Yoshimoto (AMNH, BISH).

Prodromus subviridis Distant Figures 63, 88

Prodromus subviridis Distant 1904b: 437 (n. sp.). Odhiambo, 1962: 257-259, figs. 6, 29-31 (descr.). Carvalho, 1981b: 6 (note).

DIAGNOSIS: Recognized by the weakly elevated eyes; lower margin of antennal fossa at level of ventral margin of eye (fig. 88e); antennal segment II twice as long as segment I; membranal vein weakly curved distally (fig. 88f); and structure of the male genitalia. Similar to *chiangmaiensis* and *gressitti* in structure and coloration but distinguished by the slightly larger body size, antennal coloration,

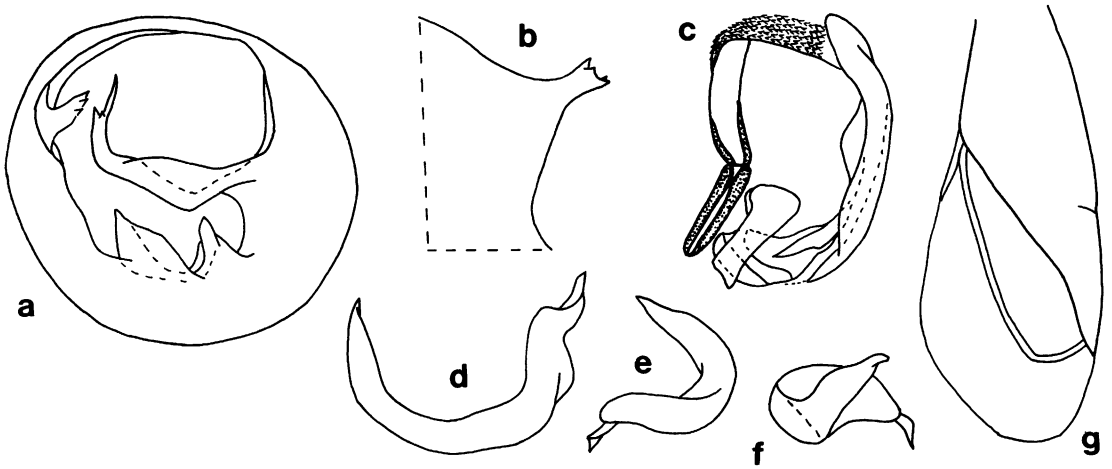


Fig. 87. *Prodrum subflavus*. a–f. Male genitalia. a. Genital capsule, posterior view. b. Left lateral process of genital capsule. c. Vesica with phallobase. d. Right paramere, dorsal view. e, f. Left paramere. e. Dorsal view. f. Apical view. g. Hemelytron.

position of the antennal fossae, and male genitalia.

REDESCRIPTION: MALE. Length 3.95–4.00; pale brownish yellow general coloration (color reported as “very pale greyish-green” in original description). **HEAD.** Width across eyes 0.66–0.67, width of vertex 0.31–0.32; eyes weakly elevated above vertex, not noticeably produced posteriorly; frons weakly convex ventrad of antennal fossae; tylus weakly produced basally, junction with frons very shallowly depressed; lower margin of antennal fossa at level of ventral margin of eye; antennal segments I and II pale yellow or yellowish brown, distal fourth of segment II reddish; antennal segments III and IV darker reddish brown; length of antennal segment I 0.39–0.41, segment II 0.84; labium reaching slightly beyond procoxae, length 0.65–0.67. **PRONOTUM.** Posterior width 0.85, median length 0.68–0.69; posterior margin of disk moderately concave medially. **HEMELYTRA.** Weakly rounded laterally; cuneus terminating well antiad of apex of membrane; membranal vein gently curved distally, apex of areolar cell broadly rounded. **LEGS.** Pale yellow, last tarsal segment brown. **GENITALIA.** Figure 88. Vesical sclerite with strong lateral flange on right medial margin (fig. 88d). **FE-MALE.** Length 4.08.

DISTRIBUTION: Lower Burma (fig. 63).

LECTOTYPE ♂ (new designation): Label 1, “Tenass. Vall., Myitta, (Doherty)”; 2, “Dis-

tant Coll., 1911-383”; 3, “*subviridis* Dist” [handwritten]; 4, “Syntype” [blue-bordered disk] (BMNH).

PARALECTOTYPES: 1♂ (abdomen missing), 1♀, same data as lectotype but without handwritten identification label (BMNH).

Prodrum tafoensis, new species

Figures 62, 89

DIAGNOSIS: Similar to *melanonotus* in size and head structure, but distinguished by the uniformly brownish yellow general coloration and structure of the male genitalia, especially the shaft of left paramere with strong dorsal protuberance and unnotched apex (fig. 89c, d). Distinguished from *thaliae* by the longer labium and first antennal segment, nearly vertical frons (fig. 88h), posteriorly projecting eyes, and structure of the male genitalia.

DESCRIPTION: MALE. Length 4.25–4.30; pale brownish yellow general coloration. **HEAD.** Width across eyes 0.78–0.79, width of vertex 0.36–0.39; structure as described for *melanonotus*; antennae brown, segment I yellowish brown with base narrowly pale and basal third strongly narrowed; length of antennal segment I 0.64–0.66, segment II 0.96–1.06; labium reaching slightly beyond apices of procoxae, length 0.75–0.79. **PRONOTUM.** Posterior width 1.03–1.04, median length 0.75–0.78; posterior lobe of disk weakly

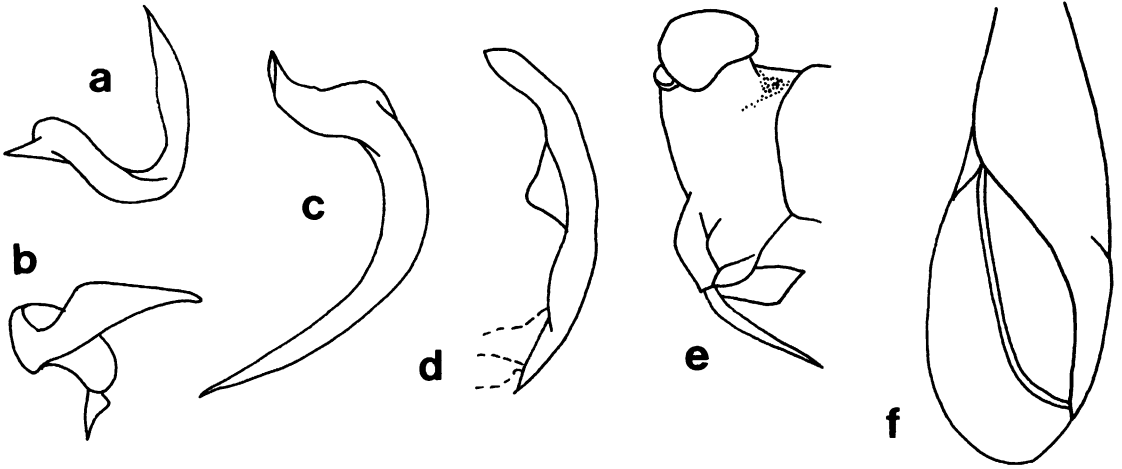


Fig. 88. *Prodromus subviridis*. a-d. Male genitalia. a, b. Left paramere. a. Dorsal view. b. Apical view. c. Right paramere, dorsal view. d. Vesica, distal membranous sac omitted. e. Head, lateral view. f. Hemelytron.

convex dorsally, posterior margin strongly and broadly concave. HEMELYTRA. Weakly rounded laterally; cuneus short, terminating well anterior of apex of membrane; membranous vein strongly curved distally, apex of areolar cell truncate. LEGS. Pale yellow or light brownish yellow. GENITALIA. Figure 89. Vesical sclerite of nearly uniform width, not expanded on right lateral margin (fig. 89f); shaft of left paramere with strong dorsal protuberance (fig. 89c, d). FEMALE. Unknown.

ETYMOLOGY: Named for the type locality.

DISTRIBUTION: Ghana (fig. 62).

HOLOTYPE ♂: GHANA: Tafo, July 31, 1967, UV trap, D. Leston (AMNH).

PARATYPES: GHANA: Tafo: 1♂, July 19, 1967, UV trap; 1♂, Sept. 7, 1967, both D. Leston (BMNH).

Prodromus thaliae China

Figures 62, 90

Prodromus thaliae China, 1944: 182-183, figs. 2, 10 (n. sp.). Odhiambo, 1962: 253 (key). Carvalho, 1981b: 6 (note).

Prodromus flavonotus Odhiambo, 1962: 261-262, figs. 5, 35-38, (n. sp.). NEW SYNONYMY.

DIAGNOSIS: Recognized by the pale trans-

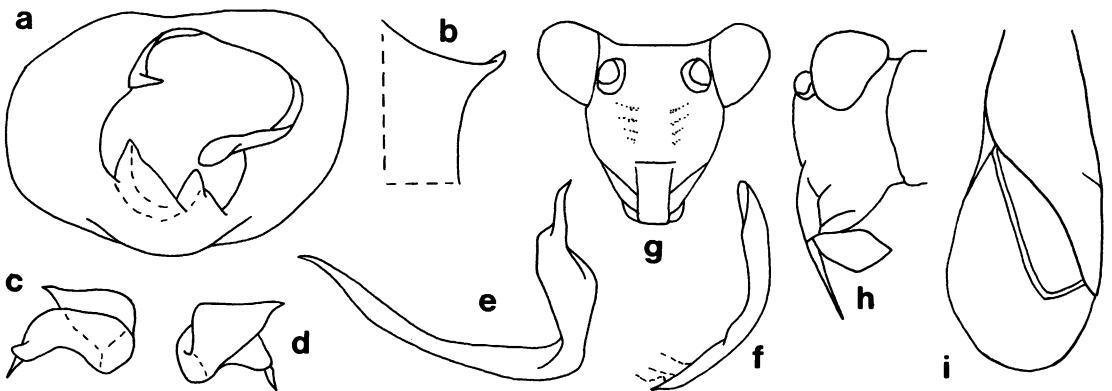


Fig. 89. *Prodromus tafoensis*. a-f. Male genitalia. a. Genital capsule, posterior view. b. Left lateral process of genital capsule. c, d. Left paramere. c. Lateral view. d. Apical view. e. Right paramere, dorsal view. f. Vesica, distal membranous sac omitted. g, h. Head. g. Anterior view. h. Lateral view. i. Hemelytron.

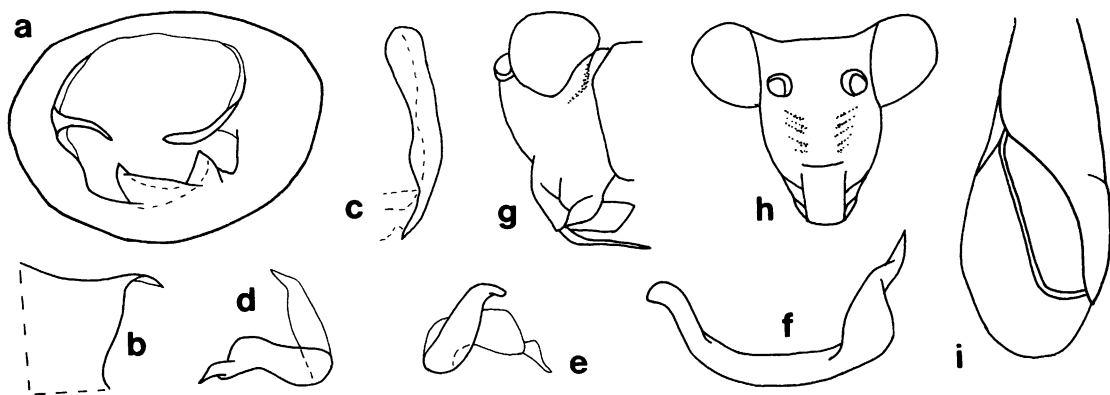


Fig. 90. *Prodromus thaliae*. a-f. Male genitalia. a. Genital capsule, posterior view. b. Left lateral process of genital capsule. c. Vesica, distal membranous sac omitted. d, e. Left paramere. d. Lateral view. e. Apical view. f. Right paramere, dorsal view. g, h. Head. g. Lateral view. h. Anterior view. i. Hemelytron.

lucent green general coloration, sometimes with brownish suffusion on head, pronotum, scutellum, and claval commissure; short first antennal segment (length slightly more than one-half that of segment II); weakly convex frons (fig. 90g); eyes not noticeably produced posteriorly; labium reaching slightly beyond apices of procoxae; and structure of the male genitalia.

REDESCRIPTION: MALE. Length 4.05–4.32; pale translucent green general coloration (fading to yellow in aged preserved specimens); head, especially dorsally, pronotum, scutellum, and claval commissure sometimes suffused with brown or dark brown, rarely extensively darkened as in holotype of *flavonotus*. **HEAD.** Width across eyes 0.75–0.79, width of vertex 0.35–0.36; eyes slightly produced above vertex, not noticeably produced posteriorly in dorsal view; frons weakly convex ventrad of antennal fossae; tylus moderately produced basally, junction with frons broadly depressed; lower margin of antennal fossa above level of ventral margin of eye; antennae brown to dark reddish brown, segment I pale green with brownish suffusion apically; length of antennal segment I 0.46–0.51, segment II 0.88–0.95; labium reaching slightly beyond apices of procoxae, length 0.58–0.62. **PRONOTUM.** Posterior width 0.98–1.06, median length 0.75–0.82; posterior lobe of disk slightly inflated, posterior margin weakly concave. **HEMELYTRA.** Weakly round-

ed laterally, cuneus terminating well anterior of apex of membrane; membranal vein strongly curved distally, apex of areolar cell truncate. **LEGS.** Pale green or yellowish green, last tarsal segment brown. **GENITALIA.** Figure 90. Vesical sclerite of nearly uniform width, not expanded on right lateral margin (fig. 90c). **FEMALE.** Length 4.05–4.10.

DISTRIBUTION: Ghana (fig. 62).

DISCUSSION: Comparison of the holotype of *flavonotus* Odhiambo with the holotype and other specimens of *thaliae* China reveals that these two taxa are conspecific. The type of *flavonotus* differs from typical *thaliae* only by the brownish suffusion on the head, thorax, and claval commissure. The structure of the head, body, and male genitalia is nearly identical for the two types and other examined specimens. Since the China name has priority, *flavonotus* Odhiambo becomes a junior synonym.

Prodromus thaliae has been collected on *Marantochloa purpurea* (Ridley) and *Thalia geniculata* Linn.

SPECIMENS EXAMINED: GHANA: 1♂, Nkawkaw, June 5, 1943, at light, H. E. Box (*flavonotus* holotype, BMNH); 1♂, 1♀, Kukuran-tumi, Oct. 19, 1967, D. Leston (AMNH); 1♂, Mt. Akewa, Jan. 7, 1968, D. Leston (AMNH); 1♂, 1♀, Tafo, Dec. 6, 1942, ex. *Thalia geniculata*, H. E. Box (*thaliae* holotype and paratype, BMNH); 1♂, 1♀, Tafo, Sept. 7, 1967, ex. *Marantochloa purpurea*, D. Leston (AMNH).

SPECIES REMOVED FROM *PRODROMUS*

Duducoris aethiopicus (Poppius),
new combination

Prodromus aethiopicus Poppius, 1910: 28 (n. sp.);
1912b: 196 (descr.). Odhiambo, 1962: 253 (key).
Linnavuori, 1975: 4, fig. 2 (new records).

DISCUSSION: Described by Poppius (1910) from Kenya and Tanganyika, and reported to have been collected in leaf sheaths of *Cyperus* sp. at Kibongoto, nr. Kilimanjaro, Tanganyika. Odhiambo (1962) included *aethiopicus* in his key to *Prodromus* species and Linnavuori (1975) records this species from several localities in the Equatoria Province, Sudan.

I have examined type material of *aethiopicus* from both of the localities listed by Poppius (1910) and believe that this species should be transferred to the genus *Duducoris*. The structure of the head, short third antennal segment, flat pronotal disk, and structure of the male genitalia are all much more characteristic of *Duducoris* species.

THAUMASTOMIRIS KIRKALDY

Thaumastomiris Kirkaldy, 1902: 56–57 (n. gen.).
Carvalho, 1981a: 86 (descr.).

DIAGNOSIS: Recognized by the reddish orange coloration, sometimes with limited fuscous markings; head antieriad of antennal fossae weakly convex or nearly vertical; vertex strongly transversely depressed; long, robust labium; long, broad, apically curving cuneus; and by the structure of the male genitalia, especially the bifurcate apex of the left paramere, large spinelike process at apex of vesical sclerite, and left margin of genital capsule with one or two spinelike process(es).

REDESCRIPTION: MALE. Length 4.25–5.60; width across humeral angles of pronotum 1.38–1.75; red or reddish orange general coloration; propleuron, clavus, and endocorium sometimes suffused with fuscous; pronotum, propleuron, and scutellum punctate; hemelytra finely roughened, more so on cuneus; dorsal vestiture with uniformly distributed, suberect, pale setae. **HEAD.** Short, weakly convex or nearly vertical antieriad of antennal fossae; frons strongly rounded dorsally; tylus elongate, weakly depressed at junction with

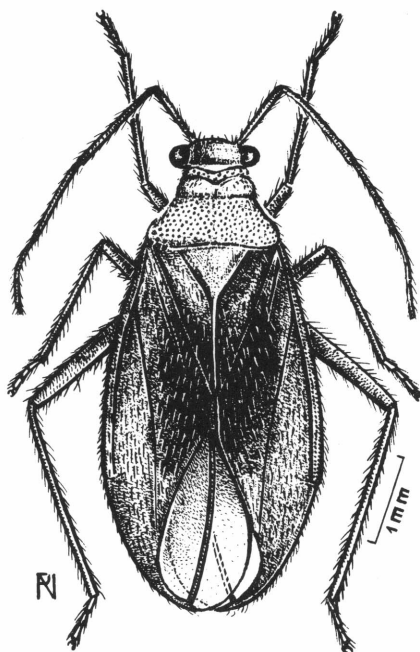


Fig. 91. *Thaumastomiris discoidalis*, male.

frons; vertex with deep, transverse depression at level of posterolateral juncture with eyes; eyes occupying half or less of head height in lateral view, protuberant, projecting laterally to slightly beyond anterolateral angles of pronotal disk, and posteriorly to near level of middle of pronotal collar; antennae inserted at level of middle of eye, fossae narrowly removed from anterior margin of eye; antennae reddish orange to fuscous, segments III, IV, and distal portion of II usually darker than segment I and base of segment II; segments I and II slightly thicker than segment III and much thicker than segment IV; all segments with semireclining, light and fewer dark, simple setae; juga and lora elongate, weakly inflated; bucculae broad; buccal cavity small, subspherical; genae very broad; gula narrow or obsolete; labium very stout, reaching between metacoxae, segments I and II twice as long as segment III or segment IV. **PRONOTUM.** Pronotal disk broad, weakly convex behind calli, strongly narrowed anteriorly, lateral margins sinuate, posterior margin weakly to moderately concave medially, broadly rounded laterally; anterior margin of disk with weakly convex collar about as broad as diameter of antennal segment I; calli

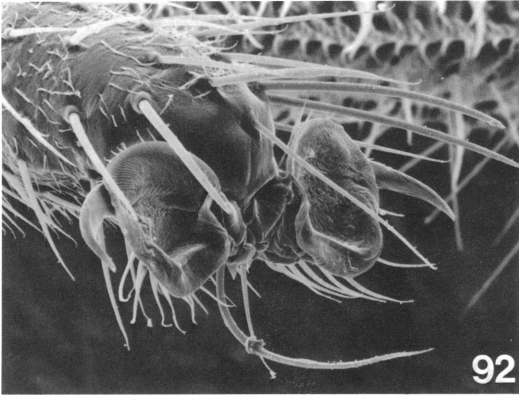


Fig. 92. Pretarsus of *Thaumastomiris discoidalis*.

prominent, extending to lateral margins of disk, separated medially by deep depression, anterior and posterior borders less strongly depressed; mesoscutum concealed; scutellum weakly elevated, flattened dorsally with shallow anteromedial depression; metathoracic scent efferent system with well-developed, tongue-shaped peritremal disk. HEMELYTRA. Broadly rounded laterally with prominent embolium; cuneus very broad, narrowed distally, following curvature of membrane to near apex, cuneal incisure shallow, fracture obsolete; membrane pale to moderately infuscated, with single, elongate primary cell, vein weakly curved distally, extending to near apex of cuneus. LEGS. Brownish yellow or reddish orange; femora slightly flattened to nearly cylindrical, front pair slightly more robust, hind pair more elongate; tibiae cylindrical, front pair slightly flared apically; tarsi dilated distally; pretarsus as in figure 92. GENITALIA. Genital capsule subquadrate, narrowed slightly distally; genital aperture large, posterodorsally oriented, asymmetrical with left margin and right anterodorsal corner more deeply excavated, left margin with one or two strong, spinelike process(es). Paramere sockets uneven, left socket much lower in posterior view. Left paramere C-shaped or broadly U-shaped, sensory lobe weakly produced, apex of shaft bifurcate. Right paramere simple, elongate, distal third to one-half very narrow, sometimes slightly curved. Vesica with single tubular sclerite bearing strong, spinelike apical process; distal membranous portion of vesica multilobed, usually with

several elongate sacs or sleeves. FEMALE. Length 4.07–5.42. Similar to male in color, structure, and vestiture.

TYPE SPECIES: *Thaumastomiris sanguinalis* Kirkaldy.

DISTRIBUTION: Sri Lanka and northern India, east to New Guinea (fig. 93).

DISCUSSION: Based on head morphology and the structure of the male genitalia, *Thaumastomiris* appears to be most closely related to a small group of genera that possess the following diagnostic features: (1) head with conspicuous transverse depression behind eyes; (2) long, robust labium, usually reaching between metacoxae or beyond, with segment II as long as or longer than segments III and IV combined; (3) long, basally broad cuneus, usually strongly narrowed distally and following curvature of outer margin of membrane, often terminating at or near apex of membrane; and (4) membranous distal region of vesica with two or more elongate sacs or tubular lobes. The taxa possessing these attributes are *Frontimiris* Carvalho, *Stenopterocorisca* Carvalho, and *Taricoris* Carvalho. Other seemingly related taxa with less distinct affinities are *Ambunticoris* Carvalho, *Cuneomiris* Carvalho, *Grossicoris* Carvalho, and *Knightiola* Hsiao. All of the above genera are distributed in New Guinea and the Philippine Islands, with the exception of *Grossicoris*, which is known from New Caledonia and New Hebrides. Further study is required to determine the phylogenetic relationships of these taxa.

Two species of *Thaumastomiris* have been collected on screwpine (*Pandanus*, Pandanaceae), and *T. discoidalis* has been recorded on "wild ginger" (*Zingiber*, Zingiberaceae). Kirkaldy (1902) gave *Crinium asiaticum* Blanco as the host plant of *T. sanguinalis*.

Thaumastomiris dissimilis Hsiao is not treated in this revision because it is not congeneric with the type and other species of *Thaumastomiris*. It appears to belong instead to the genus *Taricoris* Carvalho, 1981a, but this cannot be determined with certainty until I have examined the type species, *Taricoris wauensis* Carvalho, which is reported to be deposited in the BISH.

CLADISTIC ANALYSIS: *Taricoris* was selected as the outgroup to establish the polarity of the characters in the proposed phylogeny

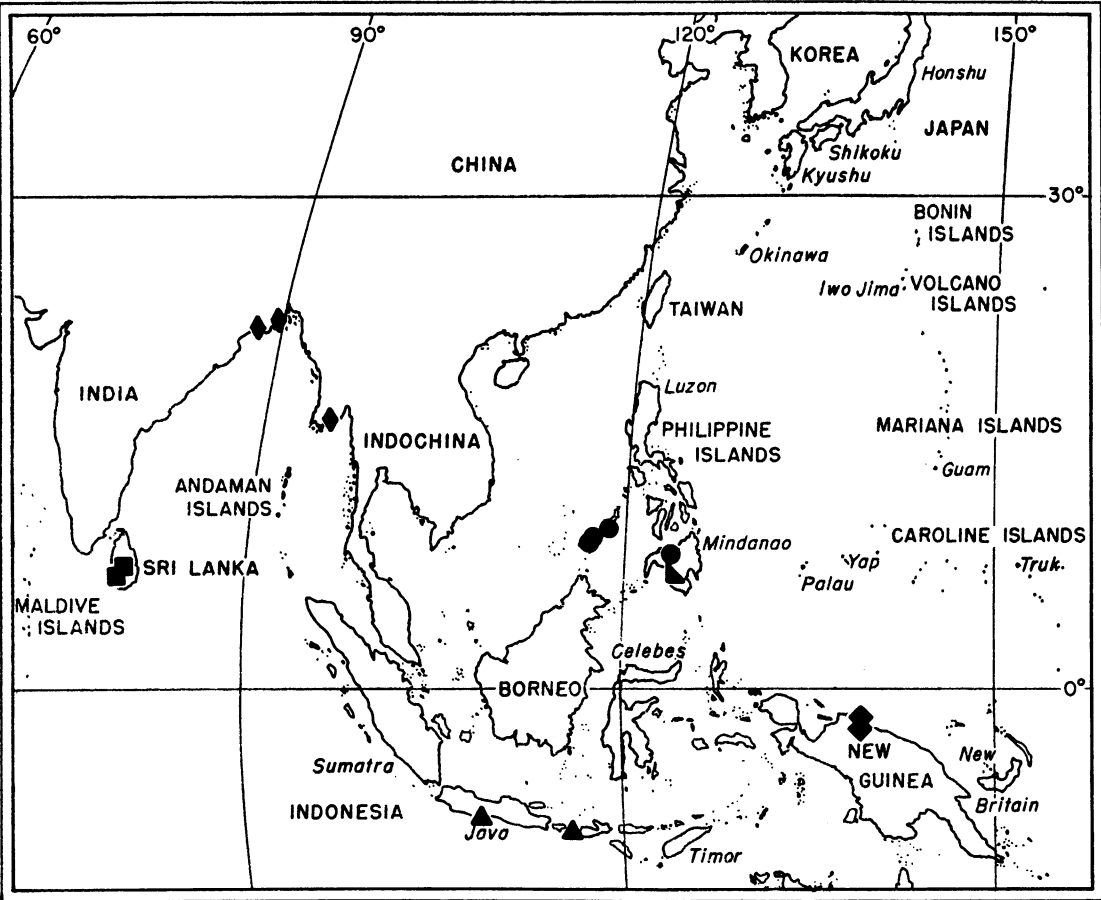


Fig. 93. Distribution of *Thaumastomiris* species: ▲, *cotabato*; ◆, *discoidalis*; ▲, *minutus*; ●, *philippinensis*; ◆, *piceatus*; ■, *sanguinalis*.

of *Thaumastomiris* species. Within the complex of genera that appear closely related to *Thaumastomiris*, a sister-group relationship between the former genus and *Taricoris* is indicated by the following synapomorphies: (1) left paramere with bifurcate or bilobed apex; (2) vesical sclerite with strong, basally directed, spinelike process arising from inner distal surface. Characters unique to *Thaumastomiris* and distinguishing this genus from *Taricoris* are as follows: (1) red or reddish orange general coloration; (2) long, weakly curved to nearly straight right paramere; and (3) genital capsule with one or two strong, spinelike processes on left distal margin—some species of *Ambunticoris* and *Cuneomiris*, as well as *Knightiola pulchella* Hsiao have a small sclerite on the left side of the capsule which is usually separated from the

margin of the aperture by a narrow membranous region, or rarely with spinelike process associated with left paramere socket. The characters for the *Thaumastomiris* analysis are described in table 11 and a character matrix is given in table 12. The results of the hand-calculated cladistic analysis revealed one minimal length tree of 12 steps (fig. 94).

KEY TO THAUMASTOMIRIS SPECIES

- 1. Length of antennal segment I much greater than width of vertex 2
- Length of antennal segment I about equal to width of vertex 4
- 2. Length of antennal segment II equal to or slightly less than width of head across eyes; scutellum coarsely punctate; left margin of genital aperture of male with two spinelike processes (figs. 99a, 100a) 3

- Length of antennal segment II greater than width of head across eyes; scutellum moderately roughened; left margin of genital aperture with single spinelike process (fig. 96a); New Guinea *discoidalis* Poppius
3. Hemelytra with endocorium and distal $\frac{1}{2}$ – $\frac{2}{3}$ of clavus suffused with fuscous; spinelike processes of genital aperture very long (fig. 99a); Burma, Pakistan, and northern India *piceatus* Distant
- Hemelytra uniformly reddish orange, without fuscous suffusion; spinelike processes of genital aperture short (fig. 100a); Sri Lanka *sanguinalis* Kirkaldy
4. Body length 4.0–4.5; length of antennal segment II less than width of head across eyes; hemelytral membrane smoky brown, veins dark brown; Java and Lombok *minutus* Poppius
- Body length 5.0–5.6; length of antennal segment II equal to or greater than width of head across eyes; hemelytral membrane lightly tinged with brownish orange, veins yellowish orange; Philippine Islands 5
5. Anterior half of propleuron finely punctate; left margin of genital aperture with two, similar-size spinelike processes (fig. 98a); Mindanao and Palawan *philippinensis* Hsiao
- Anterior half of propleuron smooth; left margin of genital aperture with single spinelike process subtended by much smaller, pointed tubercle (fig. 95a); Mindanao *cotabato*, new species

TABLE 11	
Description of <i>Thaumastomiris</i> Characters ^a	
Head	
1.	0(1)—weakly rounded anteriorly; junction of frons and tylus noticeably depressed. 1(1)—nearly vertical antieriad of antennal fossae in lateral view; junction of tylus and frons indistinct.
2.	0(1)—vertex with shallow, broad, transverse depression. 1(1)—vertex with deep, narrow, transverse depression.
3.	0(1)—length of antennal segment I subequal to or less than width of vertex. 1(2)—length of antennal segment I much greater than width of vertex.
4.	0(1)—length of antennal segment II less than or equal to width of head across eyes. 1(1)—length of antennal segment II greater than width of head across eyes.
5.	0(1)—length of labium less than or equal to posterior width of pronotum. 1(1)—length of labium much greater than posterior width of pronotum.

TABLE 11—(Continued)	
Thorax	
6.	0(1)—pronotal disk with densely distributed, deep punctures. 1(1)—pronotal disk with more sparsely distributed, shallow punctures.
7.	0(1)—posterior margin of pronotal disk nearly straight. 1(1)—posterior margin of pronotal disk distinctly concave medially.
8.	0(1)—scutellum smooth or rugulose, sometimes obscurely punctate. 1(1)—scutellum distinctly punctate.
Male genitalia	
9.	0(1)—left lateral margin of genital aperture without, or with a single spinelike process. 1(2)—left lateral margin of genital aperture with two spinelike processes.
10.	0(1)—right paramere linear in dorsal view. 1(1)—right paramere weakly curved in dorsal view.

^a Numbers followed by a period are coded characters at top of table 12; numbers in second column are character states (0 = plesiomorphic state, 1 = apomorphic state; see body of table 12); numbers in parentheses indicate the number of origins of the character state on the cladogram.

Thaumastomiris cotabato, new species
Figures 93, 95

DIAGNOSIS: Recognized by the pale hemelytral membrane, length of antennal segment I equal to width of vertex, length of antennal segment II equal to width of head across eyes, anterior half of propleuron smooth, and male with a single spinelike process on left margin of genital aperture, subtended by smaller pointed tubercle (fig. 95a).

DESCRIPTION: MALE. Length 5.00; reddish orange general coloration, antennal segments II–IV dark brown. HEAD. Width across eyes 1.05, width of vertex 0.54; length of antennal segment I 0.55, segment II 1.07; gula narrow. PRONOTUM. Posterior width 1.38; posterior margin of disk nearly straight medially; anterior half of propleuron impunctate; scutellum roughened. HEMELYTRA. Membrane pale brownish orange with yellowish orange veins. LEGS. Uniformly brownish yellow, tinged with red. GENITALIA. Figure 95. FEMALE. Length 5.00.

ETYMOLOGY: Named for the type locality; a noun in apposition.

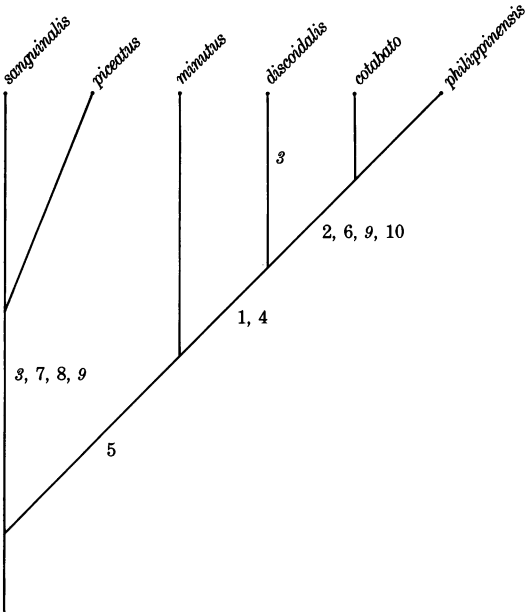


Fig. 94. Cladogram of *Thaumastomiris* species. Numbers are characters with parallelisms given in italics.

DISTRIBUTION: Mindanao, Philippine Islands (fig. 93).

HOLOTYPE ♂: PHILIPPINE ISLANDS: **Mindanao**: Cotabato, coll. Taylor (USNM). This specimen was originally designated an allotype of *philippinensis* by Hsiao (1944), but is here recognized as a distinct species differing from *philippinensis* by the impunctate anterior lobe of the propleuron and structure of the male genitalia.

TABLE 12
Character Matrix for *Thaumastomiris* Species

	1	2	3	4	5	6	7	8	9	10
<i>cotabato</i>	1	1	0	1	1	1	0	0	1	1
<i>discoidalis</i>	1	0	1	1	1	0	0	0	0	0
<i>minutus</i>	0	0	0	0	1	0	0	0	0	0
<i>philippinensis</i>	1	1	0	1	1	1	0	0	1	1
<i>piceatus</i>	0	0	1	0	0	0	1	1	1	0
<i>sanguinalis</i>	0	0	1	0	0	0	1	1	1	0

ADDITIONAL SPECIMEN: PHILIPPINE ISLANDS. 1♀, Bur. Agr., Acc. No. 1186 [no other locality data listed], B. Acre coll. (USNM). This specimen was included as a paratype of *philippinensis* by Hsiao (1944), but appears to be conspecific with the type of *cotabato*—a male example is needed for positive identification. The other paratypes of *philippinensis* listed by Hsiao (1♀, Cotabato, Mindanao; 1♂, Puerto Princesa, Palawan; 1♀, Philippine Islands) were not located and I cannot comment as to their true identity.

Thaumastomiris discoidalis Poppius
Figures 91–93, 96

Thaumastomiris discoidalis Poppius, 1912a: 13 (n. sp.). Carvalho, 1980: 657 (type); 1981a: 87–88, figs. 197–200 (descr., lectotype desig.).

DIAGNOSIS: Recognized by the fuscous suffusion on the endocorium and clavus, roughened scutellum, length of antennal segment I greater than width of vertex, length of antennal segment II much greater than width of

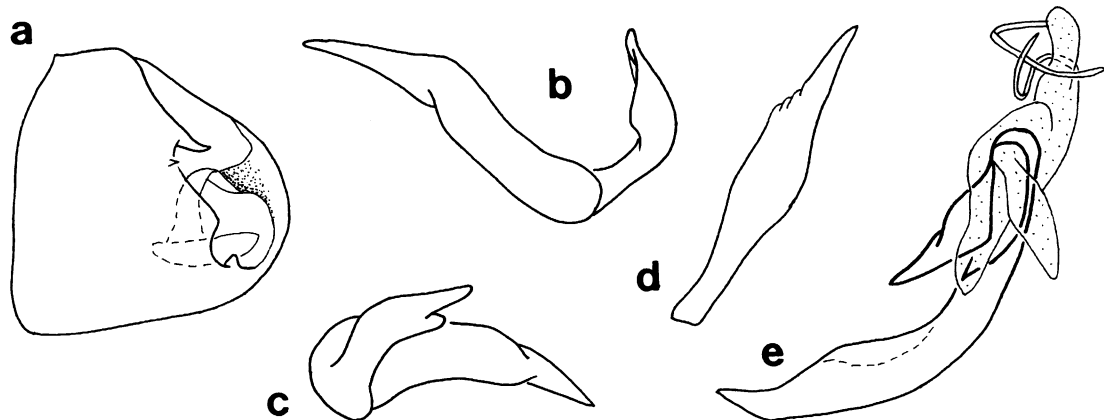


Fig. 95. Male genitalia of *Thaumastomiris cotabato*. a. Genital capsule, left lateral view. b, c. Left paramere. b. Dorsal view. c. Apical view. d. Right paramere, lateral view. e. Vesica.

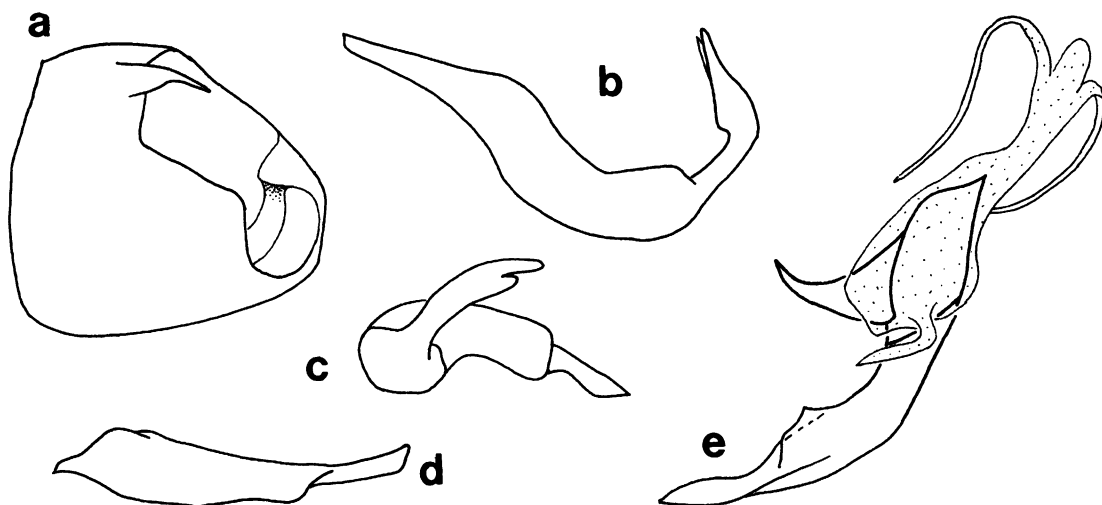


Fig. 96. Male genitalia of *Thaumastomiris discoidalis*. a. Genital capsule, left lateral view. b, c. Left paramere. b. Dorsal view. c. Apical view. d. Right paramere, lateral view. e. Vesica.

head across eyes, and male with single spine-like process on left margin of genital aperture (fig. 96a).

MEASUREMENTS: Length 5.00–5.20, width across humeral angles of pronotum 1.51–1.56; width of head across eyes 1.05–1.07, width of vertex 0.55–0.56; length of antennal segment I 0.65–0.70, segment II 1.15–1.28.

DISTRIBUTION: New Guinea (fig. 93).

DISCUSSION: *Pandanus* (Pandanaeae) and wild ginger (*Zingiber*, Zingiberaceae) have been reported as host plants of this species (Carvalho, 1981a; Poppius, 1912a).

SPECIMENS EXAMINED: NEW GUINEA: 1♀,

Biro, 96, Lemien, Berlinhafen (lectotype, UZMH—Carvalho (1980) incorrectly reported the HNHN, Budapest as the type depository). INDONESIA: **West Irian**: 2♂, 4♀, River Tor (mouth), 4 km E of Hol Maffen, July 3, 1959, T. C. Maa (BISH); 1♀, Maffin Bay, June 10, 1944, E. S. Ross (CAS); 1♀, nr. Maffin Bay and 1♂, 3♀, nr. Sarmi, Liki Is., Aug. 20, 1944, E. S. Ross (CAS).

Thaumastomiris minutus Poppius
Figures 93, 97

Thaumastomiris minutus Poppius, 1914: 160 (n. sp.).

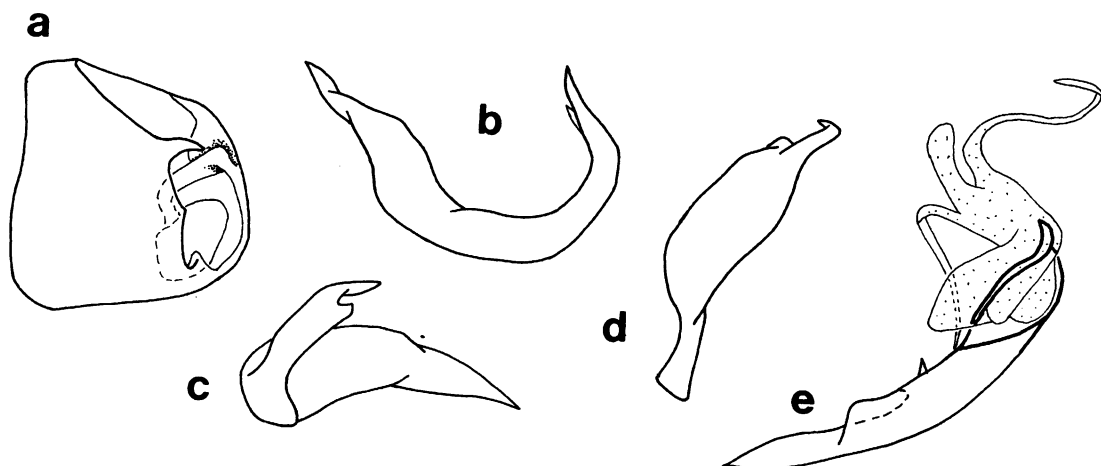


Fig. 97. Male genitalia of *Thaumastomiris minutus*. a. Genital capsule, left lateral view. b, c. Left paramere. b. Dorsal view. c. Apical view. d. Right paramere, lateral view. e. Vesica.

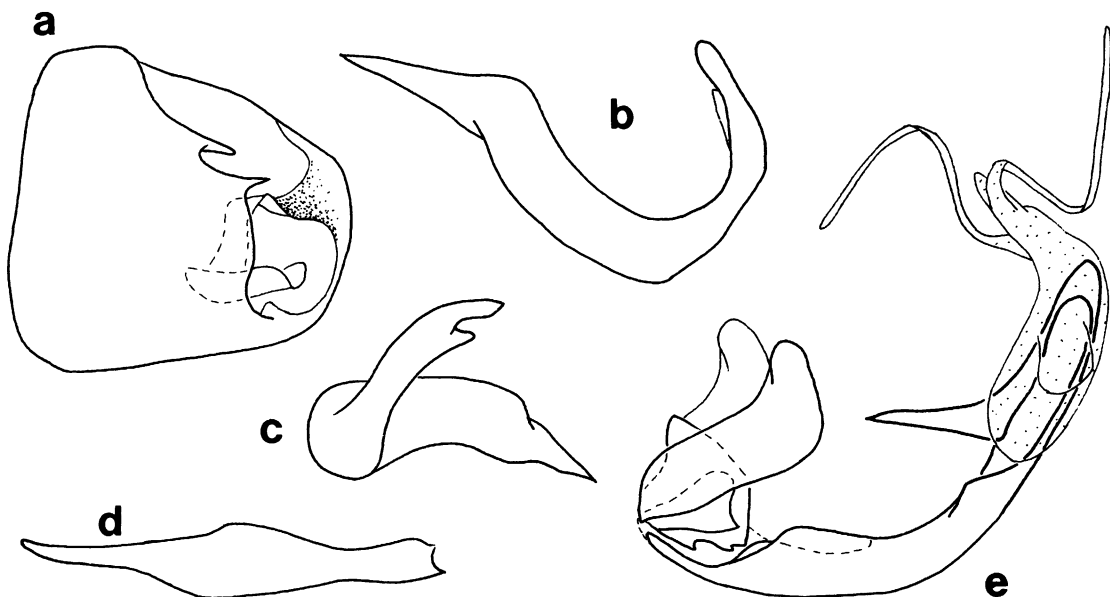


Fig. 98. Male genitalia of *Thaumastomiris philippinensis*. a. Genital capsule, left lateral view. b, c. Left paramere. b. Dorsal view. c. Apical view. d. Right paramere, lateral view. e. Vesica with phallobase.

DIAGNOSIS: Recognized by the small size, length of antennal segment I equal to width of vertex, length of antennal segment II slightly less than width of head across eyes, smoky brown hemelytral membrane with dark brown veins, and by the structure of the male genitalia, especially the small, medial process on vesical sclerite (fig. 97e) and single spinelike process on left margin of genital aperture (fig. 97a).

MEASUREMENTS: Length 4.07–4.45, width across humeral angles of pronotum 1.38–1.40; width of head across eyes 0.94–0.98, width of vertex 0.51; length of antennal segment I 0.50–0.52, segment II 0.86–0.91.

DISTRIBUTION: Java and Lombok (fig. 93).

LECTOTYPE ♂ (new designation): Label 1, “38 40”, 2, “E Jacobson, Noesa Kambangan, Java Mrt., 1911”; 3, “*Thaumastomiris minutus* n. sp. [handwritten] B. Poppius det.”; 4, “Mus. Zool. H: fors, Spec. typ. No. 9814, *Thaumastomiris minutus* Popp.” (UZMH).

PARALECTOTYPES: 1♂, same data as lectotype but with specimen number “38 38” and UZMH Type No. 9816; 1♀ with specimen number “38 39” and UZMH Type No. 9815. Three additional specimens from the type locality are indicated in the original description, and may be deposited in the Rijksmuseum van Natuurlijke Historie, Leiden.

ADDITIONAL SPECIMENS: INDONESIA: **Lombok Is.:** 2♀, Senggigi, July 26, 1977, G. G. E. Scudder (BMNH).

Thaumastomiris philippinensis Hsiao
Figures 93, 98

Thaumastomiris philippinensis Hsiao, 1944: 387–388 (n. sp.).

DIAGNOSIS: Similar to *cotabato* but distinguished by the punctate anterior half of propleuron, slightly longer second antennal segment, and left margin of genital aperture with two spinelike processes (fig. 98a). Distinguished from all other species of the genus by the pale hemelytral membrane with yellowish orange veins and structure of the male genitalia. The length of the first antennal segment is equal to or sometimes slightly greater than the width of the vertex. The propleura of *philippinensis* are sometimes darkened with fuscous.

MEASUREMENTS: Length 5.00–5.60, width across humeral angles of pronotum 1.47–1.54; width of head across eyes 1.06–1.11, width of vertex 0.58–0.62; length of antennal segment I 0.60–0.65, segment II 1.16–1.22.

DISTRIBUTION: Mindanao and Palawan, Philippine Islands (fig. 93).

DISCUSSION: Two specimens of the para-

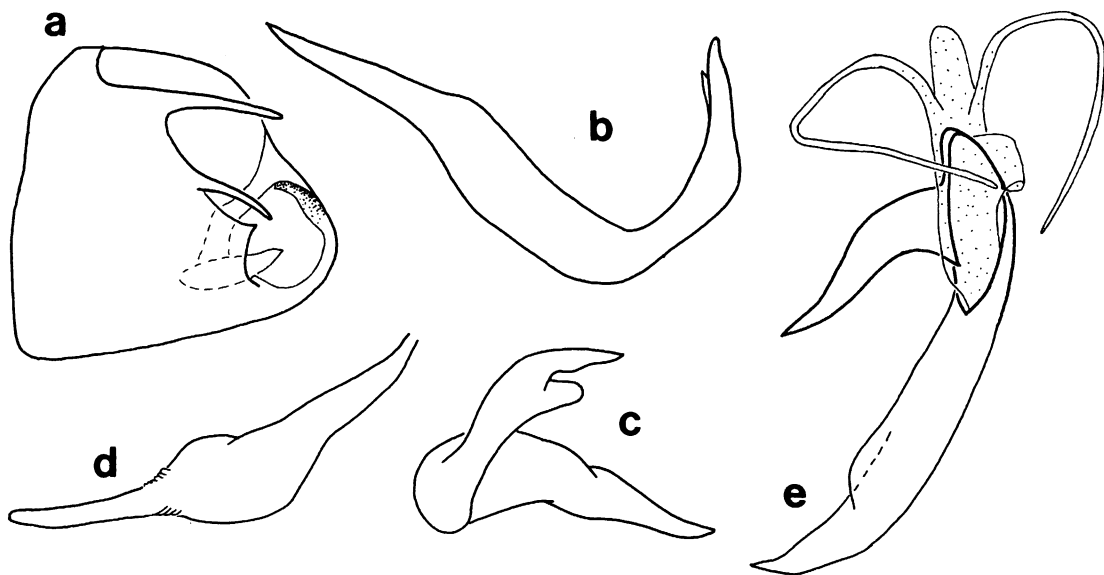


Fig. 99. Male genitalia of *Thaumastomiris piceatus*. a. Genital capsule, left lateral view. b, c. Left paramere. b. Dorsal view. c. Apical view. d. Right paramere, lateral view. e. Vesica.

type series of *philippinensis* are not conspecific with the holotype female, but belong to the new species *cotabato* (see additional discussion under *cotabato* description).

Thaumastomiris philippinensis has been collected on *Pandanus* sp. (Pandanaceae) at Eran Pt., Palawan.

SPECIMENS EXAMINED: PHILIPPINE ISLANDS: **Mindanao:** 1♂, Kolambugan, Baker coll. (USNM). **Palawan:** 1♂, 2♀, Tarumpitao Pt., May 18, 1958, H. E. Milliron (BISH); 4♂, 4 nymphs, Eran Pt., 8 km SW of Tarumpitao Pt., Dec. 31, 1959 to Jan. 4, 1960, L. W. Quate (BISH); 1♀, Puerto Princesa, Sept. 1925, R. C. McGregor (holotype, USNM).

Thaumastomiris piceatus Distant
Figures 93, 99

Thaumastomiris piceatus Distant, 1910b: 277–278 (n. sp.). Carvalho, 1981b: 8 (type).

DIAGNOSIS: Recognized by the fuscous suffusion on endocorium and distal $\frac{1}{2}$ – $\frac{2}{3}$ of clavus, coarsely punctate scutellum, length of antennal segment I much greater than width of vertex, and genital capsule with two very long, spinelike processes on left margin of aperture (fig. 99a). The second antennal segment is slightly shorter than the width of the head across the eyes.

MEASUREMENTS: Length 5.10–5.37, width across humeral angles of pronotum 1.70–1.72; width of head across eyes 1.05, width of vertex 0.48–0.50; length of antennal segment I 0.69–0.72, segment II 0.99–1.00.

DISTRIBUTION: Burma, Pakistan, and northern India (fig. 93).

LECTOTYPE ♂ (new designation): Label 1, "Type H. T." [red-bordered disk]; 2, "*Thaumastomiris piceatus* Dist., type" [handwritten]; 3, "Sorabkatti, Ganges delta, 14-XII-09., at light, Jenkins"; 4, "Distant Coll., 1911-383" (BMNH).

PARALECTOTYPES: 1♂, Gurhhalee, Khulna distr., Ganges delta, 8-XII-09, at light, Jenkins (BMNH); 1♂, Fultah, R. Hooghly, S. Bengal, 20-XI-09, J. T. Jenkins (BMNH); 1♂, Shela F. S., Khulna distr., Ganges delta, 9-XII-09, at light (BMNH).

ADDITIONAL SPECIMEN: BURMA: 1♀, Rangoon, Mar. 1927, E. J. Meggitt (USNM).

DISCUSSION: The host plant association of *piceatus* is not known. Most of the specimens collected by J. T. Jenkins in Bengal were taken at light.

Thaumastomiris sanguinalis Kirkaldy
Figures 93, 100

Thaumastomiris sanguinalis Kirkaldy, 1902: 57, pl. A, fig. 6, pl. B, fig. 4 (n. sp.). Distant, 1904b:

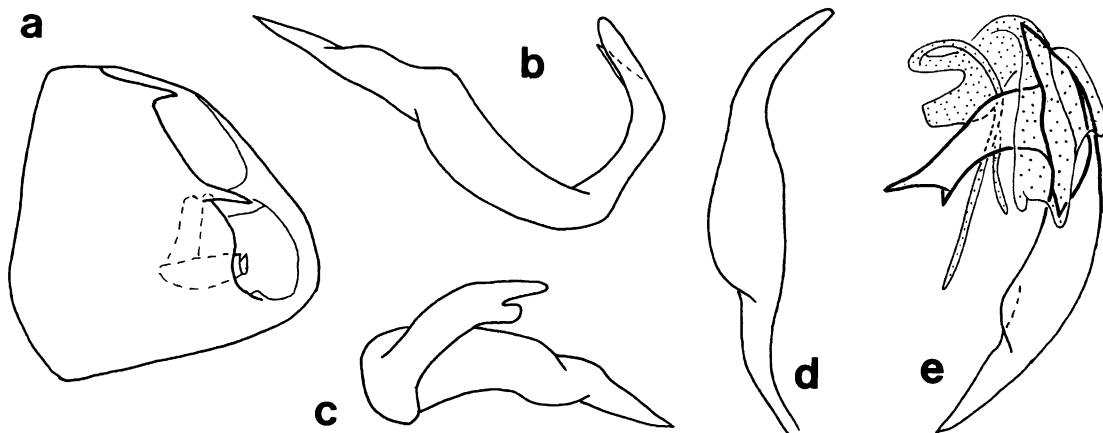


Fig. 100. Male genitalia of *Thaumastomiris sanguinalis*. a. Genital capsule, left lateral view. b, c. Left paramere. b. Dorsal view. c. Apical view. d. Right paramere, lateral view. e. Vesica.

473, fig. 305 (descr.). Carvalho, 1980: 657 (types).

DIAGNOSIS: Similar to *piceatus* but distinguished by the uniformly reddish orange hemelytra and much shorter spinelike processes on left margin of genital aperture (fig. 100a). Distinguished from other *Thaumastomiris* species by the coarsely punctate scutellum and long first antennal segment. The length of the second antennal segment is equal to or slightly less than the width of the head across the eyes.

MEASUREMENTS: Length 4.85–5.42, width across humeral angles of pronotum 1.69–1.75; width of head across eyes 0.64–0.67, width of vertex 0.49–0.50; length of antennal segment I 0.64–0.67, segment II 1.01–1.04.

DISTRIBUTION: Sri Lanka (fig. 93).

LECTOTYPE ♂ (new designation): Label 1, "Ceylon, Peradeniya"; 2, "*Thaumastomiris sanguinalis* Kirk (type)" [handwritten]; 3, "Typus" [red-bordered rectangular label] (HNHM). This specimen was recognized as a type by Carvalho (1980), who also reported a male "cotypus" from the same collection. I have not seen the latter specimen which presumably is still deposited in the Budapest Museum. In the original description, Kirkaldy does not refer specifically to a male type specimen. However, the last sentence of the description, "The types (♀) have been placed in the British Museum," does suggest that a male symbol may have been omitted from the parentheses. Distant (1904b) apparently

interpreted the sentence in this manner and quoted Kirkaldy as, "The types ♂ & ♀," etc. Distant also noted that the *sanguinalis* types were not found in the British Museum.

ADDITIONAL SPECIMENS: SRI LANKA: 2♂, 2♀ Haragama, Ceylon, V. 1911 (BMNH); 2♀, Peradeniya, Ceylon, V. 11 (BMNH); 1♂, 1♀, Ceylon, Green (BMNH); 1♀, 1♂, Ceylon (USNM). The USNM specimens also have "comp. with type" written on the labels.

DISCUSSION: Kirkaldy (1902) reported *Crinium asiaticum* Blanco as a host plant of *sanguinalis*.

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