

**Review of Zeugophorinae of New Guinea,
with description of *Zeugophorella* gen. nov.
and new synonyms of *Zeugophora*
(Coleoptera: Megalopodidae)**

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Abstract. New Guinean Zeugophorinae are reviewed, figured and keyed. Genera and subgenera proposed for Zeugophorinae are revised and the following new synonymy is proposed: *Zeugophora* Kunze, 1818 = *Pedrillia* Westwood, 1864 syn. nov. = *Pedrilliomorpha* Pic, 1917 syn. nov. = *Papuleptura* Gressitt, 1959 syn. nov. (from Cerambycidae). Due to the new synonymy *Pedrilliomorpha atosuturalis* Pic, 1917 and *Papuleptura alticola* Gressitt, 1959 are transferred to *Zeugophora*. A new genus, *Zeugophorella* gen. nov. (= *Pedrilliomorpha* sensu MEDVEDEV (1996)), is proposed for elongate New Guinean species with the following species transferred to it: *Z. bicolora* (Medvedev, 1996) comb. nov., *Z. clypealis* (Medvedev, 1996) comb. nov., *Z. elongata* (Gressitt, 1959) comb. nov., *Z. gracilicornis* (Medvedev, 1996) comb. nov., *Z. riedeli* (Medvedev, 1996) comb. nov. A new species, *Zeugophorella pallescens* sp. nov., is described from West Papua (Manokwari prov.). A key and catalogue of all New Guinean species with a faunistic overview is also included.

Key words. Coleoptera, Cerambycidae, Megalopodidae, taxonomy, new genus, new species, synonymy, New Guinea

Introduction

Zeugophorinae represents a small subfamily of Megalopodidae. Both were previously classified as subfamilies of leaf beetles (Chrysomelidae). This affinity was early on pointed out by MONRÓS (1959). Nevertheless he treated both as subfamilies of Chrysomelidae close to Cryptocephalinae (MONRÓS 1960). Recent studies on morphology of both, adults and larvae,

and phylogenetic analysis showed Megalopodidae as an independent taxon of the family rank having three subfamilies: Palophaginae, Megalopodinae and Zeugophorinae (KUSCHEL & MAY 1990, 1996, SUZUKI 1994, REID 1995, 2000).

The Megalopodidae is considered together with Orsodacnidae as basal to the chrysomelid lineage of Chrysomeloidea. Megalopodidae share with most species of the cerambycid lineage plesiomorphic characters such as paired apical spurs on all tibiae and the elongate and separate anterior apodemes of the male genitalia. All members of Megalopodidae also have a mesonotal stridulatory organ which is homologous to that of Cerambycidae (SCHMITT 1994, KUSCHEL & MAY 1996). They differ from Cerambycidae by the antennae not being reflexed backwards, their insertions not on tubercles and located low on the face above the base of mandibles (CLARK & RILEY 2002).

Within the Megalopodidae all three subfamilies differ in general appearance and habits. Zeugophorinae are the only subfamily having mining larvae and adults feeding on open leaf surface while the others are stem borers in the larval stage and adults feeding on sap from stems (Megalopodinae) or on pollen of Araucariaceae (Palophaginae). Adults can be readily recognized by pubescent, densely and coarsely punctate elytra, by the appendiculate and divergent tarsal claws and the tarsal empodium being present (i.e. MONRÓS 1954, KUSCHEL & MAY 1990).

Zeugophorinae are distributed in the Holarctic region and various parts of the Old World tropics eastwards to New Caledonia (SCHÖLLER 2009), however, in the tropics the species occur usually in the mountains, often in the alpine zone above tree line. Unfortunately, most species are rare, collected only occasionally and in small numbers.

Currently, the subfamily contains 105 species in two genera: *Zeugophora* Kuntze, 1818 (divided in two subgenera: *Zeugophora* s. str. and *Pedrillia* Westwood, 1864) and *Pedrilliomorpha* Pic, 1917 (JOLIVET 1957, MONRÓS 1959, RILEY et al. 2003, SILFVERBERG 2010, SEKERKA unpubl. data). However, their separation is in our opinion artificial and we propose a new generic rearrangement including new synonymy and a description of a new genus. In addition we discovered that the genus *Papuleptura* Gressitt, 1965 (Cerambycidae: Lepturinae) proposed for two New Guinean species is a synonym of *Zeugophora*. All considerations and new synonymies are presented below along with an overview of New Guinean Zeugophorinae.

Material and methods

Specimens were studied using methods of standard comparative morphology. Images (except of Fig. 15) were taken using Leica S8Apo stereomicroscope with Nikon Coolpix 4500 with MDC lens. All photos were composed using Combine ZM software from stacks of 10–15 separate images.

Wing venation nomenclature follows CHŪJŌ (1952).

All data from collection labels are verbatim (except of *Papuleptura*); a double vertical line “||” divides data on different labels and a single vertical line “|” separates data in different rows. Additional comments and details of label are given in square brackets. Label data for the two *Papuleptura* holotypes are given in a way like additional material as we did not record them in 2005 in the precise way as the other types.

Studied specimens are housed in following collections:

- BPBM Bernice P. Bishop Museum, Honolulu, Hawai, USA;
 EVCB Eduard Vives collection, Barcelona, Spain;
 LSCL Lukáš Sekerka collection, Liberec, Czech Republic;
 MNHN Muséum national d'Histoire naturelle, Paris, France;
 NMEG Naturkunde Museum, Erfurt, Germany;
 SMNS Staatliches Museum für Naturkunde, Stuttgart, Germany.

Results

Zeugophora Kunze, 1818

Zeugophora Kunze, 1818: 71 (type species: *Crioceris subspinosa* Fabricius, 1781, designated by WESTWOOD (1838)).

Auchenia Thunberg, 1792: 95 (type species: *Crioceris subspinosa* Fabricius, 1781, designated by Duponchel & Chevrolat in D'ORBIGNY (1842)); objective older synonym suppressed under ICZN Opinion No. 1382 (ICZN 1986).

Taraxis LeConte, 1850: 237 (type species: *Taraxis abnormis* LeConte, 1850 by monotypy); LECONTE (1854) as synonym of *Auchenia*.

Pedrillia Westwood, 1864: 280 (type species: *Pedrillia longicornis* Westwood, 1864 by monotypy), **syn. nov.**

Macrozeugophora Achard, 1914: 288 (type species: *Macrozeugophora ornata* Achard, 1914 by monotypy); GRESSITT (1945) as synonym of *Zeugophora*.

Bruchomima Achard, 1916: 47 (type species: *Bruchomima chloropelta* Achard, 1916 by monotypy); MONRÓS (1959) as synonym of *Pedrillia*.

Pedrilliomorpha Pic, 1917: 9 (type species: *Pedrilliomorpha atosuturalis* Pic, 1917 by monotypy), **syn. nov.**

Austrolema Oke, 1932: 164 (type species: *Austrolema vitinea* Oke, 1932 by monotypy); MONRÓS (1959) as synonym of *Pedrillia*.

Pedrillomorpha Papp, 1946: 25 (unavailable name, no type species designated).

Pedrinella Papp, 1946: 26 (unavailable name, no type species designated).

Pedrilonga Papp, 1946: 26 (unavailable name, no type species designated).

Papuleptura Gressitt, 1959: 81 (type species: *Papuleptura alticola* Gressitt, 1959 by original designation), **syn. nov.**

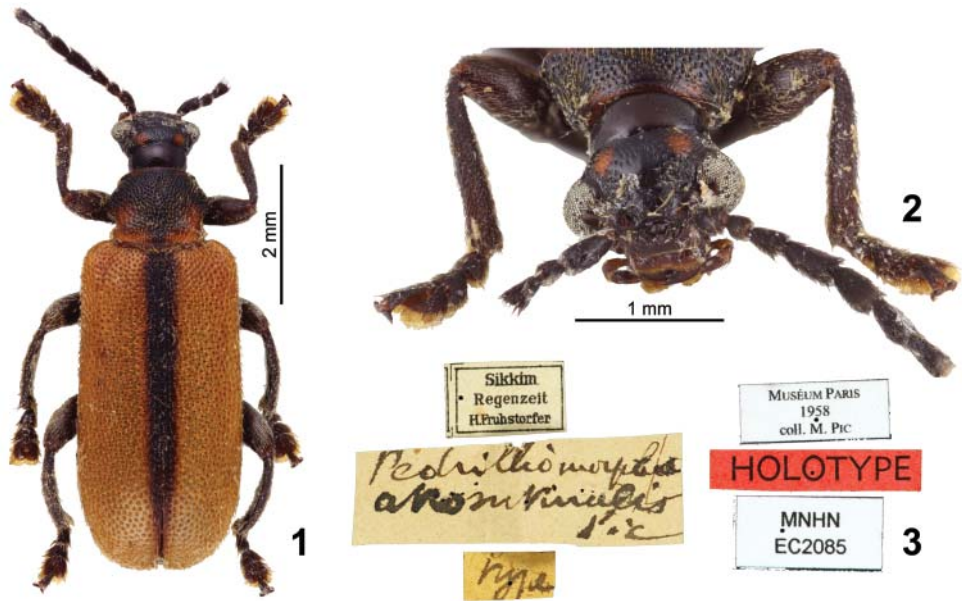
***Pedrillia*, a new synonym of *Zeugophora*.** WESTWOOD (1864) proposed the genus *Pedrillia* for a single species *P. longicornis* Westwood, 1864 and compared the new genus to *Temnaspis* Lacordaire, 1845 (Megalopodinae). Over time the genus was understood to be closely related to *Zeugophora*. JACOBY (1908) separated them by presence (in *Pedrillia*) or absence (in *Zeugophora*) of a transverse sulcus at the pronotal base, however, this proved to be a variable character. BRYANT (1943) synonymized *Pedrillia* with *Zeugophora*. Subsequent authors accepted the synonymy (i.e. GRESSITT 1945, CHŪJŌ 1952, REID 1998) or treated *Pedrillia* as a subgenus of *Zeugophora* (i.e. CROWSON 1946; GRESSITT & KIMOTO 1961; KIMOTO & GRESSITT 1979; SEENO & WILCOX 1982; REID 1989, 1992; SCHÖLLER 2009; SILFVERBERG 2010). CROWSON (1946) used the following characters to separate both subgenera: eyes less strongly emarginate in *Zeugophora* s. str. (eyes more strongly emarginate in *Pedrillia*), frons with an impressed line between the eyes posterior to the fronto-clypeal suture in *Zeugophora* s. str. (frons without a transverse impressed line posterior to the fronto-clypeal suture in *Pedrillia*), and the basal angles of the prothorax simple, without laterally projecting setae in *Zeugophora* s. str. (prothorax more or less tuberculate, bearing about three laterally projecting setae in *Pedrillia*), *Zeugophora* s. str. being Holarctic and *Pedrillia* Oriental and Afrotropical. The emargination of the eye is a continuously variable character of low value for delimiting taxa of

subgeneric rank. Many species from the Oriental Region have weakly emarginated eyes like the Holarctic species. Moreover some of them have the margin of the eye complete without any emargination. The same, concerning variability, is true for the structure of the frons and the vertex of the head. Therefore the only character of possible taxonomic value remains – the presence of 2–4 long stiff setae in the basal corners of the pronotum. These setae are quite variable in length and in some *Pedrillia* have a tendency to be partly to completely reduced. CHŪJŌ (1952) treated *Pedrillia* as a synonym of *Zeugophora*, however, mentioned that both differ in wing venation with Cu2 isolated in any case, forked into Cu2a and Cu2b in *Zeugophora*, but simple in *Pedrillia*. REID (1989, 1992) pointed out that both subgenera also differ in food plant preferences – *Zeugophora* s. str. associated with Salicaceae while *Pedrillia* with Sapindaceae and Celastraceae. However, Zeugophorinae have mining larvae and therefore they are quite likely not strictly associated with one host plant family as many taxa with mining larvae are known to have tendency to polyphagy on both species as well as host plant family level (i.e. CONNOR & TAVERNER 1997, SANTIAGO-BLAY 2005). This would also support the recent record of feeding association of *Z. enduwakombukoensis* Sekerka, 2007 with Asteraceae (SEKERKA 2007). Unfortunately very little is known about the biology of most species as of 105 only about ten have known host plants, most from the Holarctic Region. Most recently SCHÖLLER (2009) described two new *Zeugophora* species from New Caledonia and discussed the status of *Pedrillia*. He stated that characters used for separation of both subgenera (i.e. emargination of eye) are variable and not suitable, however, he retained *Pedrillia* as a valid subgenus and pointed out that further studies are required.

We had an opportunity to examine about 40 species from various parts of the *Zeugophora* distribution range (Europe, North America, SE Asia and New Guinea). Individual species have various combinations of characters used for separation of *Pedrillia* from *Zeugophora* as well as particular characters shown to be very variable. Therefore we consider *Pedrillia* as a junior subjective synonym of *Zeugophora*.

PAPP (1946) treated *Pedrillia* as a genus and divided it into four subgenera without any note on *Zeugophora* or previous synonymy. Because he did not designate type species for the newly described subgenera (*Pedrillimorpha* Papp, 1946, *Pedinella* Papp, 1946, *Pedrilonga* Papp, 1946) these are unavailable names according to articles 13.3 and 64.7.1 of the ICZN (1999).

***Pedrillimorpha*, a new synonym of *Zeugophora*.** PIC (1917) proposed the genus *Pedrillimorpha* for a single species *P. atosuturalis* Pic, 1917 from Sikkim (India). He stated that the genus is intermediate between *Pedrillia* and *Zeugophora*, however, distinct at first glance by the structure of the prothorax and by its elongate form (PIC 1917). The species remained rather a mystery as none of following authors studied the type specimen. GRESSITT (1945) stated that *Pedrillimorpha* has the eye margin entire while *Zeugophora* has emarginated eyes. MONRÓS (1959) synonymized *Pedrillimorpha* with *Auchenia* (= *Zeugophora*) without any further comments, while the following authors treated the genus as separate from *Zeugophora* (i.e. GRESSITT & KIMOTO 1961, MEDVEDEV 1996, SILFVERBERG 2010). We have studied the holotype of *P. atosuturalis* (Figs 1–3) housed in the MNHN and could not find any particular character to separate it from other Oriental *Zeugophora* species. Its elongate body is moreover



Figs 1–3. *Pedrilliomorpha atosuturalis* Pic, 1917 (holotype). 1 – dorsum, 2 – head, 3 – labels.

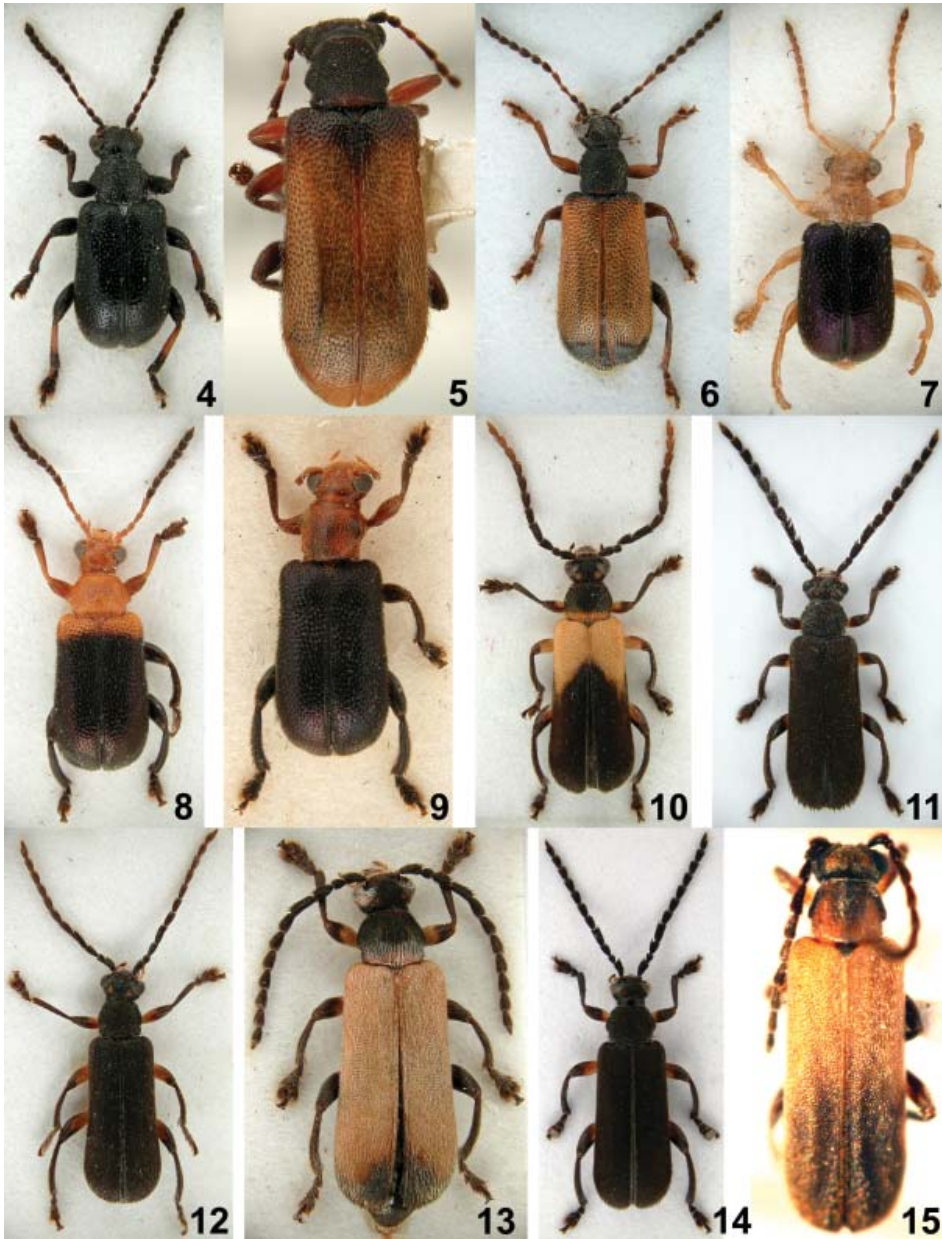
similar to several Chinese species. The entire eye margin without any emargination used as a differential character by GRESSITT & KIMOTO (1961) is erroneous as the holotype has distinctly emarginated eyes (Fig. 2). Recently, MEDVEDEV (1996) described four new species from New Guinea and attributed them to the genus *Pedrilliomorpha* on the basis of strongly elongate body. However, these species are not congeneric with *P. atosuturalis* and are placed here in a new genus *Zeugophorella* gen. nov. (see p. 753).

***Papuleptura*, a new synonym of *Zeugophora*.** GRESSITT (1959) proposed the genus *Papuleptura* for two New Guinean species and placed it into the subfamily Lepturinae of longhorn beetles (Cerambycidae). He also mentioned: “This genus seems to have no close ally. It does not fit well into any of the defined tribes of Lepturinae.” We recently studied specimens of both species and with surprise revealed that they in fact belong to Zeugophorinae.

The type species, *Papuleptura alticola*, is clearly a member of *Zeugophora* and closely related to recently described *Z. enduwakombugoensis* from the same locality (SEKERKA 2007). Therefore we propose here the synonymy of *Papuleptura* with *Zeugophora*.

The other species, *Papuleptura elongata* Gressitt, 1959 is related to elongate species described recently by MEDVEDEV (1996) in the genus *Pedrilliomorpha* on the basis of strongly elongate body and is transferred here to *Zeugophorella* gen. nov. (see p. 753).

The new synonymy of *Zeugophora* Kunze, 1818 with *Papuleptura* Gressitt, 1959 implies that the cerambycid fauna of Papua New Guinea lost the unique genus that was attributed to the subfamily Lepturinae in the Papuan subregion. This agrees with the fact that Lepturinae are absent from the Australian and Polynesian region, recently confirmed by the transfer of



Figs 4–15. New Guinean Zeugophorinae. 4 – *Zeugophora aethiops* Medvedev, 1996 (holotype, 3.0 mm), 5 – *Z. alticola* (Gressitt, 1959) (3.9 mm), 6 – *Z. enduwakombugoensis* Sekerka, 2007 (holotype, 3.4 mm), 7 – *Z. papuana* Medvedev, 2009 (paratype, 3.1 mm), 8, 9 – *Z. setsukoae* Gressitt, 1965 (3.6 mm and 3.9 mm), 10 – *Zeugophorella bicolora* (Medvedev, 1996) (holotype, 4.7 mm), 11 – *Z. clypealis* (Medvedev, 1996) (holotype, 5.1 mm), 12 – *Z. gracilicornis* (Medvedev, 1996) (holotype, 3.8 mm), 13 – *Z. pallescens* sp. nov. (holotype, 4.9 mm); 14 – *Z. riedeli* (Medvedev, 1996) (paratype, 5.2 mm), 15 – *Z. elongata* (Gressitt, 1959) (holotype, 4.75 mm after original description).

Blosyropus Redtenbacher, 1868 (New Zealand) and *Montrouzerina dentata* (Fauvel, 1906) (New Caledonia) to the subfamily Cerambycinae (VIVES et al. 2011). The closest representatives of the subfamily Lepturinae, two species of the diverse genus *Elacomia* Heller, 1916 (*E. subfasciata* Gressitt, 1940 from Ceram and *E. misolensis* Gressitt, 1959 from Mysol), occur in the Eastern part of the Indonesian Archipelago (GRESSITT 1982).

Zeugophorella Sekerka gen. nov.

Type species. *Pedrilliomorpha riedeli* Medvedev, 1996 by present designation.

Other species transferred to *Zeugophorella* gen. nov. *Pedrilliomorpha bicolora* Medvedev, 1996, *P. clypealis* Medvedev, 1996, *P. gracilicornis* Medvedev, 1996, and *Papuleptura elongata* Gressitt, 1959.

Diagnosis. See Table 1. The differential characters on genitalia are given based on REID'S (1989) descriptions of three Australian *Zeugophora* species. However, these may prove in the future not to be generic characters as genitalia of most species are unknown. The structure and form of aedeagus and spermatheca is similar to the species illustrated by REID (1989).

Description. Head strongly constricted behind eyes. Eyes with deep emargination next to antennal insertions. Emargination smooth, shiny and micro-reticulate. Antennal insertions forming small hump. Antennae long, pubescent, 11-segmented, segments constricted at base. Antennomeres punctate and microreticulate, basal four antennomeres shiny, V–VI intermediate and VII–XI dull. Antennomere II always the shortest. Antennae as long as 0.67–0.80 body length, in males slightly longer than in females. Vertex densely and coarsely punctate and covered with adherent setae and with fulvous rounded spot behind eyes. Clypeus transverse, smooth, microreticulate and pubescent on sides. Labrum transverse,

Table 1. Diagnosis of *Zeugophorella* gen. nov. and *Zeugophora* Kunze, 1818.

	<i>Zeugophora</i> Kunze, 1818	<i>Zeugophorella</i> gen. nov.
Elytra length/width ratio	1.5–2.1	always above 2.3
punctuation of elytra	dense but with interspaces at least as wide as the puncture diameter; punctures moderately large	very dense with interspaces narrower than puncture diameter, sometimes punctures almost touching each other; punctures small
punctuation of pronotum	impunctate to densely punctate but always with broad shiny interspaces; punctures moderately large	densely punctate, punctures almost touching each other and small
shape of pronotum	always more or less constricted in basal third, mostly with lateral sides obviously angulate; pronotum in species with feeble angulation almost as long as wide or even longer than wide	feebly constricted with lateral sides obtuse; pronotum always broader than long
vertex of head	impunctate to moderately densely punctate but always with broad interspaces	densely and coarsely punctate, punctures almost touching each other
dorsum	usually at least partly shiny	opaque
male genitalia: apex of tegmen	convex	emarginate
male genitalia: spiculum	elongate-rhomboidal	Y-shaped

smooth, anterior margin with row of coarse punctures, each possessing a long seta, lower margin with dense and short pubescence. Mandibles with teeth. Maxillary palps thick, twice longer than labial ones.

Pronotum 1.15–1.35× wider than long, conical, and constricted at base. Basal margin straight, lateral margins more or less angulate. Anterior and posterior corners with a stiff long seta, distinctly longer than remaining pubescence; posterior setae thicker and longer than the anterior. Surface opaque, densely and coarsely punctate, micro-reticulate and covered with adherent long setae. Punctures touching each other, areola broad.

Scutellum small, subquadratic, smooth or densely and coarsely punctate like pronotum, micro-reticulate and pubescent.

Elytra 2.3–2.5× longer than wide, at base wider than pronotum, basal margin slightly to distinctly sinuate. Humeri slightly protruding anterad, rounded. Humeral calli not particularly marked. Surface densely and irregularly punctate, areolae smaller and deeper in comparison to pronotum and pit-like. Intervals narrow, approximately as wide as puncture diameter, microreticulate. Whole surface densely pubescent with adherent setae, lateral slopes with several additional erect setae which are about twice longer than those forming pubescence. Suture with low and broad costa, its surface sparsely punctate, pubescent, punctures smaller than those on disc, pubescence at least on apical 1/5 silver. Macropterous.

Prothorax smooth, glabrous and shiny. Procoxae enlarged, touching each other, intercoxal process interrupted in the middle. Meso- and metathorax sparsely and moderately punctate and pubescent. Mesocoxae enlarged, separated by narrow process. Metacoxae normal. Legs normal, tibiae slightly curved, tarsal claws with large, quadratic basal tooth. Abdomen sparsely and moderately punctate and pubescent.

Sexual dimorphism indistinct, however, only a very limited material was available to study. It seems that males are possibly smaller than females.

Male genitalia. Aedeagus short, stout and laterally curved. Its apex tapered in blunt angle, tube parallel-sided, basal apodemes long, projecting and simple in both studied species (Figs 16–17, 20–21). Tegmen on apex emarginate and possessing several long setae (Figs 18, 22). Spiculum Y shaped (Fig. 23).

Female genitalia. Spermatheca with tightly coiled long duct connected several times to vasculum. Vasculum curved with distinct terminal vellum (Fig. 19). Ovipositor long, tubular, and membranous. Its apex with two setose vaginal palps.

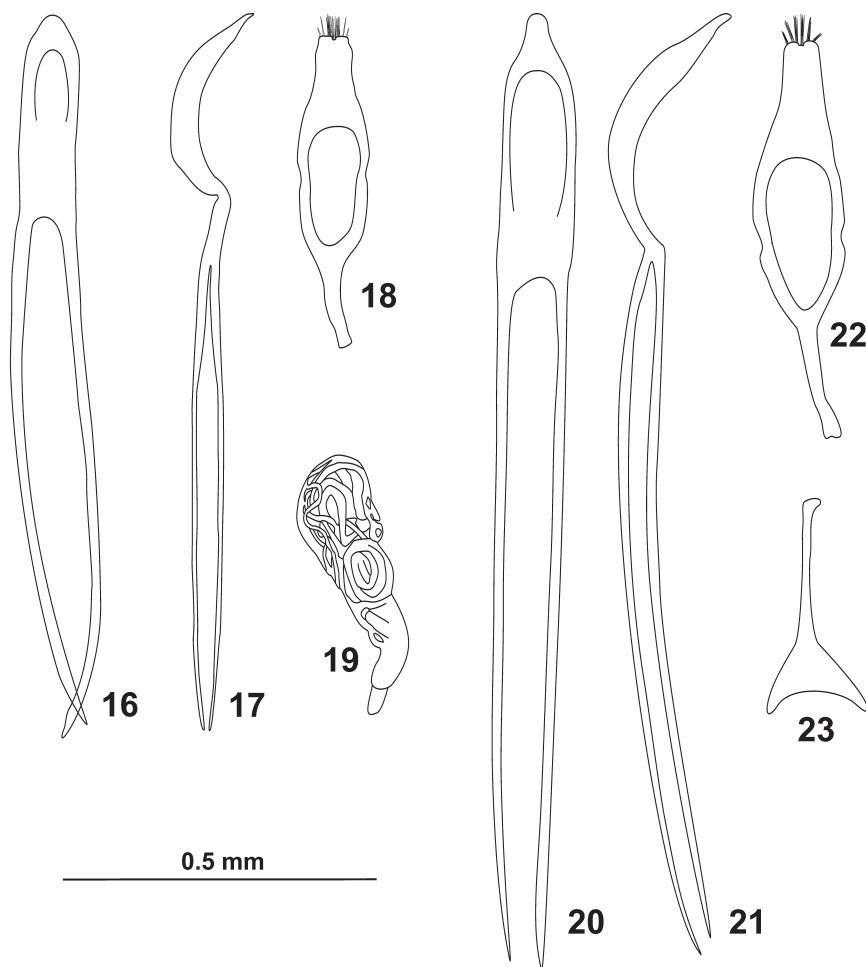
Etymology. Diminutive form of *Zeugophora*, gender feminine. Named after the external similarity to *Zeugophora*

Zeugophorella pallescens Sekerka sp. nov.

(Fig. 13)

Type material. HOLOTYPE: ♂ (glued): “IRIAN JAYA, Manokwari | Prov., Anggi or Iranmeba | 1500-2100 m, 19.-25.III. | 1993, leg. A. RIEDEL. [white, printed and cardboard label] || HOLOTYPUS | *Zeugophorella* | *pallescens* sp. nov. | L. Sekerka des. 2013 [red, printed and cardboard label with black frame]” (SMNS).

Diagnosis. Bicolourous body places it near *Z. bicolora* and *Z. elongata*. *Zeugophorella elongata* differs in having a mostly yellow pronotum with more prominent (sub-angulate) lateral angles



Figs 16–23. *Zeugophorella* genitalia. 16–18 – *Z. gracilicornis* (Medvedev, 1996), 19 – *Z. riedeli* (Medvedev, 1996), 20–23 – *Z. pallescens* sp. nov. 16, 20 – aedeagus dorsal; 17, 21 – aedeagus lateral; 18, 22 – tegmen; 19 – spermatheca; 23 – spiculum.

(obtuse and less marked in *Z. pallescens* sp. nov.). *Zeugophorella bicolora* differs in possessing golden dorsal pubescence (silver in *Z. pallescens*), having the lateral angles of the pronotum weakly marked and rounded (obtuse but distinct in *Z. pallescens*), the pronotal punctation dense but with distinct interspaces (very dense with rudimental interspaces in *Z. pallescens*), the terminal four antennomeres rusty (antennae uniformly pitchy in *Z. pallescens*) and the elytra black after their apical 2/3 (only apical 1/5 black in *Z. pallescens*).

Measurements. Length of body: 4.9 mm, width of body: 1.7 mm, length/width of body ratio: 2.9, length of pronotum: 0.8 mm, width of pronotum: 1.0 mm, width/length of pronotum ratio: 1.3.

Description of holotype. Head black with fulvous spot behind eyes. Mouthparts and antennal insertions rusty. Antennae pitchy. Pronotum black with basal 1/4 yellow. Scutellum rusty. Elytra yellow, apical fifth pitchy. Thorax black with area around coxae rusty. Abdomen pitchy brown. Coxae, trochanters and 2/3 of femora yellow, rest of leg pitchy.

Pronotum distinctly transverse, 1.25 times wider than long. Lateral angulation prominent but obtuse, base strongly constricted. Surface of pronotum very densely and coarsely punctate, punctures touching each other, interspaces rudimental, and covered with silver pubescence.

Scutellum subquadratic smooth, impunctate and pubescent.

Base of elytra slightly sinuate, humeral angles almost not protruding anterad. Elytra densely and coarsely punctate. Punctuation irregular, intervals as broad as puncture diameter or slightly wider. Whole elytra pubescent, pubescence silver, on apex only slightly reaching behind elytral margin.

Antennae long and thick, as long as 0.7 body length (3.3 mm). Length ratio of antennomeres: 100 : 58 : 93 : 126 : 93 : 92 : 94 : 94 : 89 : 84 : 108. Antennomere III 1.6 times longer than II; antennomere IV, the longest, 1.3 times longer than III and 2.2 times than II.

Male genitalia. Aedeagus short, stout, parallel-sided, with very long and simple basal apodemes, and strongly tapered and projecting apex (Figs 20–21). Apex of tegmen emarginate and appears bilobate, setose (Fig. 22). Spiculum Y-shaped (Fig. 23).

Key to Zeugophorinae known from New Guinea

- 1 Dorsum shiny, moderately densely punctate, intervals broad and shiny. Vertex of head impunctate to moderately densely punctate. Elytral length/width ratio below 2.1. 2 (*Zeugophora*)
- Dorsum opaque, densely punctate, intervals very narrow. Vertex of head very densely punctate. Elytral length/width ratio above 2.3. 7 (*Zeugophorella* gen. nov.)
- 2 Dorsum at least partially metallic. 3
- Dorsum completely non-metallic. 5
- 3 Head and pronotum ochraceous, elytra metallic blue or basally ochraceous. 4
- Head and pronotum black, elytra metallic blue with small pale spot on each humerus. *Zeugophora carolae* Gressitt, 1965
- 4 Eyes deeply emarginate. Elytra metallic purplish-blue or basally ochraceous. Fore legs rust-colored, mid and hind pitchy brown (Figs 8–9). *Zeugophora setsukoae* Gressitt, 1965
- Emargination of eyes very soft, thus margin appears entire. Whole elytra metallic violet. All legs pale yellow (Fig. 7). *Zeugophora papuana* Medvedev, 2009
- 5 Dorsum at least partly yellow. 6
- Dorsum uniformly black (Fig. 4). *Zeugophora aethiops* Medvedev, 1996
- 6 Antennomeres III and IV subequal in length. Pronotum deep black, almost as wide as long, lateral angulation weak. Head narrower, vertex between eyes 1.6 times wider than first antennomere. Apical fifth of elytra black (Fig. 6). Punctuation of elytra overall coarse and uniform. *Zeugophora enduwakombugoensis* Sekerka, 2007

- Antennomere IV about one third longer than III. Pronotum dark brown, distinctly wider than long, lateral angles prominent. Head broader, vertex between eyes 2.1 times wider than first antennomere. Elytra yellow only base darkened. Punctuation of elytra distinctly finer and sparser on the top of the disc (Fig. 5). ... *Zeugophora alticola* (Gressitt, 1959)
- 7 Elytra and pronotum black. 8
- Elytra and pronotum at least partly yellow. 10
- 8 Antennomere III distinctly shorter than IV. Pubescence on apex of elytra rather short, semiadherent and not projecting backwards. 9
- Antennomere III only slightly shorter than IV. Pubescence on apex of elytra long, erect and projecting to various directions. *Zeugophorella clypealis* (Medvedev, 1996)
- 9 Antennae uniformly black and thick. Pronotum distinctly transverse (Fig. 14).
..... *Zeugophorella riedeli* (Medvedev, 1996)
- Terminal seven antennomeres brown, antennae slender (Fig. 12). Pronotum slightly wider than long (Fig. 11). *Zeugophorella gracilicornis* (Medvedev, 1996)
- 10 Lateral angulations of pronotum rounded. Pronotum black with narrow basal band.
..... 11
- Lateral angulations sub-angulate. Pronotum mostly yellow with irregularly infusate anterior third. Apical third of elytra irregularly darkened (Fig. 15).
..... *Zeugophorella elongata* (Gressitt, 1965)
- 11 Dorsal pubescence golden. Lateral angulations of pronotum weak, thus, base of pronotum only slightly constricted at base. Punctuation of pronotum larger, intervals very narrow but distinct. Elytra basally yellow, apical 2/3 black. Terminal four antennomeres rusty, rest pitchy black (Fig. 10). *Zeugophorella bicolora* (Medvedev, 1996)
- Dorsal pubescence silver. Pronotum with distinct lateral angulations and strongly constricted at base. Punctuation of pronotum smaller and denser, intervals almost indistinct. Only apical 1/5 of elytra black. Antennae uniformly pitchy brown (Fig. 13).
..... *Zeugophorella pallescens* sp. nov.

Catalogue of Zeugophorinae known from New Guinea

Zeugophora aethiops Medvedev, 1996

Zeugophora aethiops Medvedev, 1996: 67 (type locality: ‘Irian Jaya: Jayawijaya, Eipomek-Langda, Orenje-Mts, 3500 m”).

Type material. PARATYPE (unsexed, glued): “Irian Jaya: Jayawijaya | Pas Habbema-See/Wame- | 19.-20.10.1993 na-Tal | leg. A: RIEDEL 3450m [pale violet, printed and cardboard label] || PARATYPUS | *Zeugophora* [handwritten] | *aethiops* m. [handwritten] | L. Medvedev det. 19[printed]95[handwritten] [white, printed and cardboard label]” (SMNS).

Distribution. Indonesia: Papua: Jayawijaya province (MEDVEDEV 1996).

***Zeugophora alticola* (Gressitt, 1959) comb. nov.**

Papuleptura alticola Gressitt, 1959: 81 (type locality: “near lake Aunde, 3600 m, Mt. Wilhelm, Bismarck Range, NE New Guinea”).

Type material. HOLOTYPE (unsexed, glued): New Guinea, Mt. Wilhelm, 3600 m., 2.vii.1955, J.L. Gressitt lgt. (BPBM).

Additional material examined. PAPUA NEW GUINEA: SIMBU: NW of Lake Piunde 3600–3800 m, 13.vi.1967, 1 spec. (on Symplocaceae: *Symplocos* sp.), G. A. Samuelson lgt. (EVCB).

Distribution. Papua New Guinea: Simbu province (GRESSITT 1959, present paper).

***Zeugophora carolae* Gressitt, 1965**

Zeugophora carolae Gressitt, 1965: 133 (type locality: “Itouda, 1500 m, Kamo Valley, Wissel Lakes area [now Paniai Lakes], NW New Guinea”).

Type material. Not studied.

Distribution. Indonesia: Papua: Paniai province (GRESSITT 1965).

***Zeugophora enduwakombuensis* Sekerka, 2007**

Zeugophora enduwakombuensis Sekerka, 2007: 759 (type locality: “PNG Simbu prov., Bismarck Range, Mt. Wilhelm, 6 km NW of Keglsugl, Lake Aunde env, 3900 m”).

Type material. HOLOTYPE (unsexed, glued, missing left hind leg): “PNG Simbu prov. | Bismarck Range, Mt. Wilhelm | 6km NW of Keglsugl | 15.ix.2006 | Lake Aunde env. 05°47’S, 145°03’E | HP: Asteraceae: Olearia spectabilis | 3900m, L. Sekerka & K. Štajerová lgt. [orange, printed and cardboard label] || HOLOTYPE | Zeugophora | enduwakombuensis | L. Sekerka det. 2007 [red, printed and cardboard label]” (LSCL).

Distribution. Papua New Guinea: Simbu province (SEKERKA 2007).

***Zeugophora papuana* Medvedev, 2009**

Zeugophora papuana Medvedev, 2009: 372 (type locality: “Papua New Guinea, Morobe Prov., Mindik, 1400-1550 m”).

Type material. HOLOTYPE (unsexed, glued): “PAPUA N.G.: Morobe Prov. | Mindik, 1400-1550m | 27.IV.1998, leg. A. RIEDEL [white, printed and cardboard label] || HOLOTYPE | Zeugophora [handwritten] | papuana [handwritten] | L. Medvedev [red, printed and cardboard label]” (SMNS).

Distribution. Papua New Guinea: Morobe province (MEDVEDEV 2009).

***Zeugophora setsukoeae* Gressitt, 1965**

Zeugophora setsukoeae Gressitt, 1965: 135 (type locality: “Airurop, 1530 m, nr Mendi, Southern Highlands, N Papua”).

Type material. Not studied.

Material examined. IRIAN JAYA: JAYAWIJAYA: Borme, 1000-1450 m, 12.-15.viii.1992, 1 spec., A. Riedel lgt. (SMNS, published by MEDVEDEV (1996)); MANOKWARI: Mokwam (Siyoubrig.), 1°06.26’S, 133°54.41’E, 1400-1800 m, 24.-28.ii.2007, 1 spec., A. Weigel lgt. (NMEG).

Distribution. Indonesia: Papua: Jayawijaya province (MEDVEDEV 1996); West Papua: Manokwari province (present paper); Papua New Guinea: Southern Highlands province (GRESSITT 1965).

Note. The specimen from Borne (Fig. 8) agrees quite well with the primary description except for the more pronounced pale basal coloration of elytra. The other specimen (Fig. 9) has whole elytra metallic purplish-blue and the pronotum somewhat darkened not pale ochraceous, nevertheless, other characters seems to be quite similar. As many *Zeugophora* species are quite variable concerning dorsal color we assigned the specimen from Mokwam to *Z. setsukoa*. However, we did not examine its holotype, housed in the Bishop Museum, thus our identification is rather tentative.

***Zeugophorella bicolora* (Medvedev, 1996) comb. nov.**

Pedrilliomorpha bicolora Medvedev, 1996: 68 (type locality: "Irian Jaya: Jayawijaya, Nalca, 1900-2100 m").

Type material. HOLOTYPE (unsexed, glued): "Irian Jaya: Jayawi- | jaya, Nalca 1900- | 8.9.1992 2100 m | leg. A. RIEDEL [pale violet, printed and cardboard label] || HOLOTYPUS | Pedrilliomorph [handwritten] | bicolora m. [handwritten] | L. Medvedev det. 19[printed]95[handwritten] [red, printed and cardboard label]" (SMNS).

Distribution. Indonesia: Papua: Jayawijaya province (MEDVEDEV 1996).

***Zeugophorella clypealis* (Medvedev, 1996) comb. nov.**

Pedrilliomorpha clypealis Medvedev, 1996: 68 (type locality: "Irian Jaya: Manokwari, Testega, 1100-1220 m").

Type material. HOLOTYPE ♀ (glued): "Irian Jaya: Manok- | wari, Testega | 11.4.1993 1100- | leg. A. RIEDEL 1220m [pale violet, printed and cardboard label] || Holotypus [red, handwritten and cardboard label] || Holotypus | Pedrilliomorpha [handwritten] | clypealis m. [handwritten] | L. Medvedev det. 199[printed]5[handwritten] [white, printed and cardboard label]" (SMNS).

Additional material. WEST PAPUA: SORONG: Batanta Islands, Waylebet, 500–820 m, 29.x.–1.xi.1996, 1 spec., A. Riedel lgt. (SMNS).

Distribution. Indonesia: West Papua: Manokwari (MEDVEDEV 1996) and Sorong provinces (present paper).

***Zeugophorella elongata* (Gressitt, 1959) comb. nov.**

Papuleptura elongata Gressitt, 1959: 81 (type locality: "Mt. Wilhelm, 3000 m, below Lake Aunde, Bismarck Range, NE New Guinea").

Type material. HOLOTYPE (unsexed, glued): New Guinea, Mt. Wilhelm, 3000 m., 4.vii.1955, J.L. Gressitt lgt. (BPBM).

Distribution. Papua New Guinea: Simbu province (GRESSITT 1959).

***Zeugophorella gracilicornis* (Medvedev, 1996) comb. nov.**

Pedrilliomorpha gracilicornis Medvedev, 1996: 68 (type locality: "Irian Jaya: Jayawijaya, Nalca, 1900-2100 m").

Type material. HOLOTYPE ♂ (glued): "Irian Jaya: Jayawi- | jaya, Nalca 1900- | 8.9.1992 2100 m | leg. A. RIEDEL [pale violet, printed and cardboard label] || Holotypus [red, handwritten and cardboard label] || Holotypus | Pedrilliomorpha [handwritten] | gracilicornis [handwritten] | m. [handwritten] | L. Medvedev det. 199[printed]5[handwritten] [white, printed and cardboard label]" (SMNS).

Distribution. Indonesia: Papua: Jayawijaya province (MEDVEDEV 1996).

Note. MEDVEDEV (1996) separated this species from similarly colored *Z. riedeli* and *Z. clypealis* by its smaller size and feebly serrate antennae. It is true that the only specimen

of *Z. gracilicornis* has thinner and less markedly serrate antennae, and being smaller in size than both congeners, however, its is a male while the other two species were described from females. *Zeugophorella gracilicornis* is very similar to *Z. riedeli* except for its size and form of the antennae, however, these are perhaps sexually dimorphic characters. Quite likely, *Zeugophorella gracilicornis* is just a male of *Z. riedeli*. However, we do not propose their synonymy until we have the opportunity to examine more material.

Zeugophorella pallescens sp. nov.

Type material. See description.

Distribution. Indonesia: West Papua: Manokwari province.

Zeugophorella riedeli (Medvedev, 1996) comb. nov.

Pedrilliomorpha riedeli Medvedev, 1996: 67 (type locality: "Irian Jaya: Jayawijaya, Borne, 1000-1300 m").

Material examined. PARATYPE ♀ (glued): "Irian Jaya: Jayawi- | jaya, Nalca 1900- | 8.9.1992 2100 m | leg. A. RIEDEL [pale violet, printed and cardboard label] || PARATYPUS [red, printed and cardboard label] || *Pedrilliomorpha* [handwritten] | riedeli m. [handwritten] | L. Medvedev det. [white, printed and cardboard label]" (SMNS).

Distribution. Indonesia: Papua: Jayawijaya province (MEDVEDEV 1996).

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