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**Two new species of the genus *Lebia* LATREILLE
from Borneo and Tenimber Islands, related to the *sellata* lineage.
5th supplement to “The genus *Lebia* LATREILLE in the Australian-Papuan Region”.
(Coleoptera, Carabidae, Lebiini)**

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Abstract

Two new species of the carabid genus *Lebia* LATREILLE, related to the *sellata*-group, are described: *Lebia grimmi* from Borneo and *L. jakli* from Tenimber Islands. The male genitalia are figured and the species are differentiated from similarly shaped and coloured species.

Introduction

As a further supplement to the revision of the species of the lebiine genus *Lebia* LATREILLE, 1802 in the Australian, Papuan, and southern Oriental Regions (BAEHR 2004, 2005, 2007, 2010, 2012) two new species, related to *L. sellata* SCHMIDT-GOEBEL, 1846, are described from Borneo and Tenimber Islands, respectively. The specimens either were kindly given, or sent for identification, by R. GRIMM (Neuenbürg) and M. HÄCKEL (Prague).

The new species belong to a subgroup within the Oriental *Lebia* that is related to *L. sellata* SCHMIDT-GOEBEL and is characterized by relatively small body size, red colour, and presence of a dark sutural stripe on the elytra that is widened at base and in apical third. Species matching this shape and colour pattern are common in the Oriental Region and difficult to distinguish. Unfortunately no general revision of the Oriental species of the genus *Lebia* is available, because the paper of JEDLICKA (1963) includes only a part of the then described species and, moreover, does not use genitalic characters for characterization and differentiation of the species; and the key in HABU (1967) covers only the Japanese species.

The matter has been recently even made worse, because KIRSCHENHOFER in a couple of papers (e.g. KIRSCHENHOFER 2009a, b) described various, mostly very similar, species from the Oriental Region, either from single females, or if males are involved, without describing or figuring the internal structures of the aedeagus which in many *Lebia* are very characteristic and elaborate, because the internal sacs may bear variously shaped and located teeth, spines, or spinose plates. This taxonomic procedure does not really improve our knowledge and renders work on this genus rather more difficult.

Therefore, unfortunately, of almost no Oriental *Lebia* the internal structures of the male genitalia have been examined, which makes identification of species very difficult, because sorting of species only using body size, shape, and colour pattern is delicate due to the presence of several very similarly shaped and coloured species, and also to a quite reasonable amount of intraspecific variation in some widely ranging species.

From the Papuan-Australian Region to which Tenimber Islands belong, no *Lebia* of similar body shape and colouration has been recorded, hence the new species *L. jakli* is unique for that region. The *Lebia* species recorded from Borneo likewise do not include any species comparable to *L. grimmi* (STORK 1986, KIRSCHENHOFER 2009a). This species is also different from some similarly coloured species from nearby areas that have been compared; hence the new species likewise is unique.

Methods

The genitalia were removed from specimens relaxed for a night in a jar under moist atmosphere, then cleaned for a short while in hot 10% KOH. The habitus photographs were obtained by a digital camera using ProgRes CapturePro 2.6 and AutoMontage and subsequently were worked with Corel Photo Paint X4.

Measurements were taken using a stereo microscope with an ocular micrometer. Length has been measured from apex of labrum to apex of elytra. Length of pronotum was measured from the most advanced part of the base to the most advanced part of the apex. Length of elytra was taken from the most advanced part of the humerus to the very apex of the elytra.

Types are stored in the working collection of the author (CBM, part of Zoologische Staatssammlung München, ZSM) and in the collection M. HÄCKEL (CHP) in Natural History Museum, Prague (NHMP). Data of examined material are given in full length and the exact labelling was used; also original spelling of date of collecting is used.

Lebia grimmi sp. n. (Figs 1, 3)

Examined types:

Holotype: ♂, "Borneo, Sabah, Kota Kinabalu NP, 500m Tambunan, 24.-26.2.2014, leg. R. Grimm" (CBM, in ZSM).

Etymology: The name is a patronym in honour of the collector, ROLAND GRIMM, well-known specialist for Oriental Tenebrionidae.

Diagnosis. Well characterized, and distinguished from similarly shaped and coloured Oriental species, by the internal structure of the aedeagus which is composed of two oblique rows of 5, respectively 4 separate sclerotized teeth in the middle of the internal sac.

Description (Fig. 3)

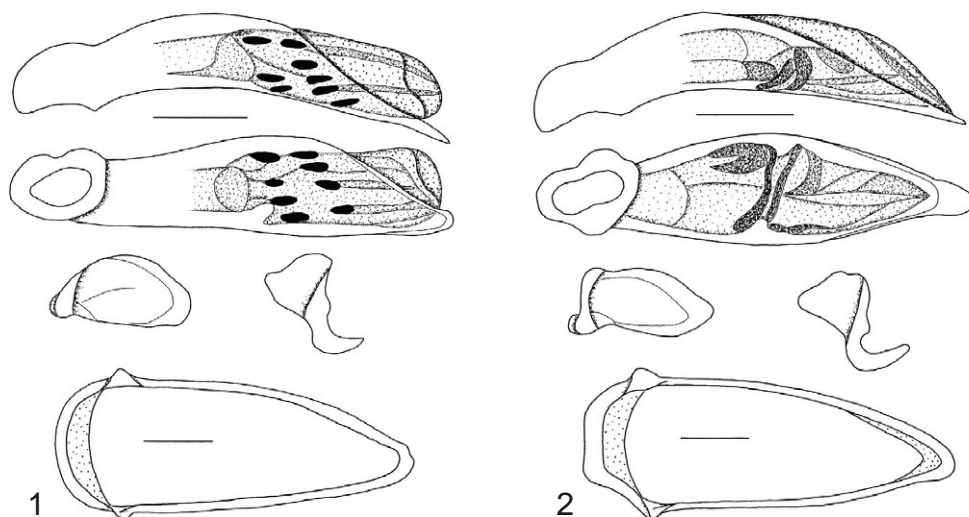
Measurements and ratios: Body length: 4.7 mm; width: 2.15 mm. width/length of pronotum: 1.54; width pronotum/head: 1.20; length/width of elytra: 1.41; width elytra/pronotum: 1.72.

Colour: Upper and lower surfaces, mouth parts, antenna, and legs yellow. Elytra with a black sutural stripe that covers the 1st interval, widens near base to a triangular spot on the three median intervals which does not attain the very base, and again widens behind middle to a rhomboidal spot that laterally attains the 4th interval. In the apical fourth of the elytra only a very narrow dark line exists immediately at suture. Very faded, barely recognizable dark areas are just perceptible laterally of the rhomboidal spot and along the lateral margin of the 7th interval.

Head: Of average size and shape, slightly narrower than the pronotum. Eye very large, semicircular, orbit very short. Antenna of moderate size, surpassing the basal angle of the pronotum by about three antennomeres, median antennomeres almost twice as long as wide. Labrum with a shallow impression in middle. Frons with a short, oblique impression on either side close to the clypeal suture, centre of frons quite even. Whole surface with distinct though slightly superficial, isodiametric microreticulation, impunctate, impilose, fairly glossy.

Pronotum: Rather wide, slightly wider than the head, widest slightly in front of middle, slightly narrowed towards base. Apex very slightly excised, apical angles widely rounded off, lateral margin anteriorly very convex, from middle almost straight, slightly oblique, extremely slightly sinuate in front of the basal angle. Base in middle much produced and convex, lateral excision deep, lateral parts of base transversal but gently convex, therefore the about rectangular basal angle laterad even slightly produced. Apex not margined, base distinctly and in middle coarsely margined. Lateral margin widely explanate throughout, explanation even widened towards base, marginal channel fairly deep. Surface with a distinct prebasal transverse sulcus. Anterior marginal seta located at apical third, slightly removed from margin, posterior marginal seta situated at basal margin, both setae elongate. Disk with distinct, about isodiametric microreticulation, with some fine, very inconspicuous, transverse striae, with scattered, rather coarse punctures which are quite difficult to recognize within the microreticulation, impilose, surface moderately glossy.

Elytra: Rather elongate (in *L. sellata* species-group), oval-shaped, slightly widened towards apex, widest well behind middle. Upper surface moderately convex. Humerus widely rounded, but at apex obtusely angu-



Figs 1, 2: Aedeagus, left side and lower surface, left and right parameres, genital ring. Scale bars: 0.25 mm. **1.** *Lebia grimmi* sp. n. **2.** *L. jakli* sp. n.

late, lateral margin oblique and slightly convex, barely incised at basal third, apical angles widely rounded, apex barely sinuate, apical margin slightly incurved at suture. Striae complete, deep, at bottom very finely crenulate. Intervals convex throughout. 3rd interval bipunctate, punctures situated at 3rd stria. Series of marginal punctures composed of 13 punctures, the penultimate one removed from margin; series little interrupted in middle. Also with two punctures at the ends of 3rd and 1st intervals. Setae elongate, but that at end of 1st interval short. Intervals with fine, slightly superficial but distinct, very transverse microreticulation and with very scattered, barely recognizable punctures, moderately glossy. Metathoracic wings fully developed.

Lower surface: Metepisternum elongate, almost 2 x as long as wide. Prosteronum with some very short erect hairs in middle; abdominal sternites very sparsely pilose, pilosity fairly elongate. Male terminal sternite 4-setose.

Legs: Of moderate size. 4th tarsomeres deeply excised. Tarsal claws with 4 large teeth. 1st-3rd male tarsomeres slightly widened and sparsely, biserially squamose.

Male genitalia (Fig. 1): Genital ring narrow and elongate, in basal half parallel-sided, towards apex slightly asymmetrically triangular, with fairly wide, obtuse apex and rather short basis. Aedeagus moderately elongate, distinctly, asymmetrically widened in middle, straight, lower surface almost straight. Apex moderately elongate, depressed, straight, moderately wide, obtusely triangular, situated asymmetrically on the right side. Orificium moderately elongate. Folding of internal sac complex, with two rows of 5 and 4 separate, stout spines at bottom. Parameres of dissimilar shape, left paramere comparably short, longer than the right one, with convexly oblique apex; right paramere short but massive, rhomboidal.

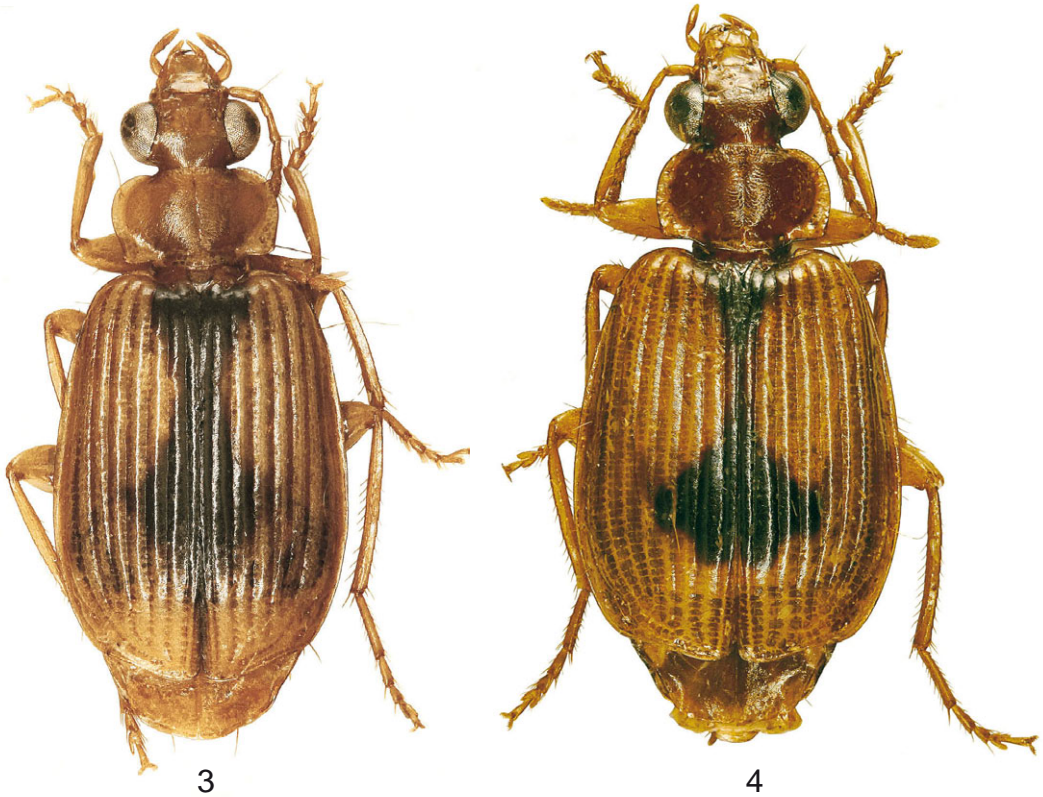
Female gonocoxites: Unknown.

Variation: Unknown.

Distribution. Lower slope of Mt. Kinabalu, Sabah, north-eastern Borneo. Known only from type locality.

Collecting circumstances. Not recorded, but by personal information of the collector sampled at night in rainforest.

Relationships. Presently no *Lebia* species is known from Borneo that bears a comparable elytral pattern. Some similarly shaped and patterned *Lebia* species of other Indonesian islands and of southern mainland Asia were compared, but in spite of the descriptions of a couple of similarly looking species from southern Asia the *Lebia* fauna still is poorly known, mainly because of lack of satisfactorily examinations of the male genitalia of almost all recorded species. Therefore the relationships of *L. grimmi* at present remain unsettled.



Figs 3, 4: Habitus. Body length in brackets. **3.** *Lebia grimmi* sp. n. (4.7 mm). **4.** *L. jakli* sp. n. (5.1 mm).

Lebia jakli sp. n. (Figs 2, 4)

Examined types:

Holotype: ♂, "INDOAUSTR.E-INDONESIA Tanimbar Isl. Yamdena Is. 21kmNE Saumlaki: Mamms. vill. 150m XII-05 lgt. S.Jakl" (CHP, in NHMP). – **Paratypes:** 1 ♂, 1 ♀, same data (CBM, CHP).

Etymology. The name is a patronym in honour of the collector, STEFAN JAKL.

Diagnosis. Distinguished from all known Papuan-Australian species by the colour pattern of the elytra, also by the internal structure of the aedeagus which is composed of two sclerotized but not denticulate, coiled bands in the middle of the internal sac.

Description (Fig. 4)

Measurements and ratios: Body length: 4.4-5.3 mm; width: 2.15-2.55 mm. width/length of pronotum: 1.54-1.57; width pronotum/head: 1.17-1.22; length/width of elytra: 1.30-1.36; width elytra/pronotum: 1.83-1.96.

Colour: Head and pronotum pale red, elytra, lower surfaces, mouth parts, antenna, and legs dirty yellow. Elytra with a black sutural stripe that covers the 1st interval, widens near base to an ill defined triangular spot on the three median intervals which attains the very base, and again widens behind middle to a short rhomboidal spot that laterally attains the 4th interval, but is more or less distinctly, shortly prolonged anteriorly on 5th interval. Apex of elytra behind the postmedian spot unicolourous yellow. Lateral margin of 7th interval very inconspicuously dark.

Head: Of average size and shape, slightly narrower than the pronotum. Eye very large, semicircular, orbit very short. Antenna of moderate size, surpassing the basal angle of the pronotum by about two

antennomeres, median antennomeres slightly > 1.5 x as long as wide. Labrum with a shallow impression in middle. Frons with a short, oblique impression on either side close to the clypeal suture, centre of frons quite even. Whole surface with distinct though rather superficial, isodiametric microreticulation, impunctate, impilose, fairly glossy.

Pronotum: Rather wide, slightly wider than the head, widest slightly in front of middle, slightly narrowed towards base. Apex very slightly excised, apical angles widely rounded off, lateral margin anteriorly very convex, from middle but slightly convex to almost straight, slightly oblique, not or extremely slightly sinuate in front of the basal angle. Base in middle much produced and convex, lateral excision deep, lateral parts of base transversal, very slightly convex, the about rectangular basal angle laterad barely produced. Apex only laterally margined, base distinctly and in middle coarsely margined. Lateral margin near apex rather narrow, explanate basad, marginal channel fairly deep. Surface with a distinct prebasal transverse sulcus. Anterior marginal seta located in front of apical third, slightly removed from margin, posterior marginal seta situated at basal margin, both setae elongate. Disk with distinct, about isodiametric microreticulation, with several coarse, irregularly transverse striae, with scattered, rather coarse punctures which are very difficult to recognize within the microreticulation, impilose, surface rather dull.

Elytra: Rather short (in *L. sellata* species-group), oval-shaped, markedly widened towards apex, widest well behind middle. Upper surface rather convex. Humerus widely rounded, but at apex obtusely angulate, lateral margin oblique and slightly convex, barely incised at basal third, apical angles widely rounded, apex very slightly sinuate, apical margin slightly incurved at suture. Striae complete, deep, at bottom very finely crenulate. Intervals convex throughout. 3rd interval bipunctate, punctures situated at 3rd stria. Series of marginal punctures composed of 14 punctures, the penultimate one removed from margin; series little interrupted in middle. Also with two punctures at the ends of 3rd and 1st intervals. Setae elongate, but that at end of 1st interval short. Intervals with fairly coarse, distinct, transverse microreticulation and with very scattered, barely recognizable punctures, moderately glossy. Metathoracic wings fully developed.

Lower surface: Metepisternum rather elongate, slightly < 2 x as long as wide. Prosternum with some very short erect hairs in middle; abdominal sternites sparsely pilose, pilosity fairly elongate. Terminal sternite in both sexes 4-setose.

Legs: Of moderate size. 4th tarsomeres deeply excised. Tarsal claws with 3-4 large teeth. 1st-3rd male tarsomeres slightly widened and sparsely, biserially squamose.

Male genitalia (Fig. 2): Genital ring narrow and elongate, very gently convex, with fairly wide, rounded apex and moderately short basis. Aedeagus moderately elongate, considerably and symmetrically widened in middle, straight, lower surface almost straight. Apex moderately elongate, depressed, straight, wide, symmetric, at tip rounded. Orificium moderately elongate. Folding of internal sac complex, with two narrow, transverse, coiled, sclerotized bands in middle and several less sclerotized folds. Parameres of dissimilar shape, left paramere comparably elongate, longer than the right one, with obtusely triangular apex; right paramere short but massive, rhomboidal.

Female gonocoxites: Of typical *Lebia*-like shape: gonocoxite 2 short, rounded at apex, both gonocoxites lacking any setae.

Variation: Some variation noted in body size and in distinctness of the microreticulation on head and pronotum. Because of the very restricted number of available specimens it is doubtful, whether the more superficial microreticulation of the single female denotes a sexual difference.

Distribution: Yamdena Island in Tenimber Islands. Known only from type locality.

Collecting circumstances: Not recorded.

Relationships. Presently no *Lebia* species is known from the Papuan-Australian region, as well as from Sulawesi and the Moluccas, that bears a comparable elytral pattern. It seems, therefore, that the relatives of *L. jakli* should be looked for in the (southern) Oriental Region, preferably in the Indonesian insular belt. However, the *Lebia* fauna of this area is very unsatisfactorily recorded, hence the relationships of *L. jakli* at present remain unsettled.

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