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## Notes on Oriental Clivinini and the description of two new species (Coleoptera: Carabidae: Clivinini)

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**Abstract:** The new Oriental species *Clivina antoni* nov.sp. and *Trilophidius planophthalmus* nov.sp. are described, illustrated and separated from the most similar species. The species *Clivina alutacea* LESNE and *C. julieni* LESNE are redescribed by the aid of the holotypes and their status is changed into the genus *Rugiluwclivina* BALKENOHL. The identification key to the species of the genus *Rugiluwclivina* is revised and amended.

**Key words:** *Clivina*, *Trilophidius*, *Rugiluwclivina*, Oriental region, key to species, new species, taxonomy.

### Introduction

Working on Oriental Clivinini some new findings regarding the genera *Clivina* LATREILLE, *Rugiluwclivina* BALKENOHL and *Trilophidius* JEANNEL became apparent reported in this contribution.

Nearly twenty years ago the species *Clivina rugosofemoralis* BALKENOHL from the North of Laos was described. Among undetermined material from the banks of the Khan River near Luan Prabang collected and kindly submitted to me by Klaus Werner Anton there was a species which on the first glance resembles strikingly *C. rugosofemoralis*. However, careful investigation revealed distinct differences, requiring the description of this new species.

According to current knowledge, the genus *Trilophidius* occurs in Asia with eight species belonging to the species group *T. impunctatus*. The genus has been revised 17 years ago with six species known that time (BALKENOHL 2001). Another species was described recently (BALKENOHL 2017a). Working on bulky material submitted to me by the Museum für Naturkunde Berlin, (Dr. Johannes Frisch, Bernd Jäger),—my focus was taken on a small series of *Trilophidius* specimens obviously with a very different shape from the known species, also described here.

Due to the kindness of Dr. Thierry Deuve I had the opportunity to investigate some *Clivina* material deposited in the Muséum national d'Histoire naturelle, Paris. Among undetermined material some type material designated by Pierre Lesne was localized. This material, obviously collected during the expedition of Auguste Pavie conducted to Indo-China (today the geographical South of Vietnam and parts of Cambodia) in 1879-1895, contains also the type material of *Clivina alutacea* LESNE and *C. julieni* LESNE, described by LESNE (1896) who was at that time Assistant at the Muséum d'Histoire naturelle in Paris. The find is a serendipitously event because both of the species fulfil

the description of the genus *Rugilucivina* BALKENOHL giving reason to me to revisit the genus, redescribe the two unrecognized but valid species with until recently unknown deposition, and to reconstruct and amend the identification key to the species.

### Material and methods

The material of the genus *Rugilucivina* from the Muséum national d'Historie naturelle, Paris consist of 23 specimens. These were sorted under the names *Clivina alutacea* LESNE and *C. julieni* LESNE. However, investigation revealed both of the taxa were not conspecific although some of the specimens bear a determination label from Lesne. Fortunately, the specimens serving LESNE as types were among the material and labelled properly and uniquely. The mix of species consist of *C. julieni*, *C. alutacea*, and *Rugilucivina puncticollis* BALKENOHL. Therefore, this historic material is listed completely in the taxonomical part.

The dry mounted specimens were examined with stereomicroscopes Leica M205-C and Reichert-Jung Polyvar. Measurements were taken using an ocular micrometer calibrated with an objective micrometer respectively with the integrated and computerized measurement system. Body length was measured from the apex of the longer mandible in closed position to the apex of the longer elytron. The length of the pronotum was measured along the median line including the flange-like base, and the width was determined at the widest part. The length of the elytra was measured from the middle of the anterior basal tip of the reflexed lateral margin to the tip of the apex of the longer elytron. The width of the elytron was measured at maximum width of both elytra and represents the general width of the specimen. Arithmetic means ( $\bar{X}$ ) are provided for the values if more than three specimens were available. Otherwise original values are given.

The genitalia dissected were mounted on transparent celon cards and embedded in polyvinylpyrrolidone with a plain surface of the embedding material. After clearing overnight, these cards were fixed on an object slide and used under the microscope. Descriptions were made from the genitalia with transmitted respectively top light (Reichert-Jung Polyvar microscope; used magnification 80-500 times). Dissected specimens are indicated separately under material as males and females, respectively.

Photo pictures were taken with a 5-megapixel Jenoptic core 5 digital camera either through the stereomicroscope Leica M205-C using a motorised focussing drive and diffused light with Leica hood LED5000 HDI, or for the Polyvar microscope using the drive manually with halogen or mercury light. All pictures are composites, processed and optimized by using Imagic Client software and enhanced with CorelDRAW Graphics Suite X5. The complete information given on the labels are displayed in the description chapters of the new species verbatim as they appear. The historic material is not in good condition. It was carefully cleaned and all supportive material like cards and pins were kept together with the specimens at the same needle. For comparison, type material of *Clivina rugosofemoralis*, *Rugilucivina* and *Trilophidius* was available from the author's collection.

In general, terms, descriptions of characters and methods were based on the Figures and explanations in BALKENOHL (1996, 1999, 2001).

## Abbreviations used:

MNHN .....Muséum national d'Histoire naturelle, Paris, France

MFNB .....Museum für Naturkunde Berlin, Germany

CBB .....collection of author

**Taxonomy****Genus *Clivina* LATREILLE, 1802**Type species: *Scarites arenarius* FABRICIUS, 1771 (= *Tenebrio fossor* LINNAEUS, 1758).***Clivina antoni* nov.sp. (Figs 1, 2)**

Type material: **Holotype:** ♂, with labels and data: white, printed "N-Laos, Khan River, at light 5km E Luang Prabang leg. K.W. Anton, 21.IV.1999" (CBB). **Paratypes:** 2♂♂: same data as holotype (CBB).

**E t y m o l o g y :** The species is dedicated to Klaus Werner Anton (Emmendingen near Freiburg, Germany), well known specialist in Bruchidae, and is expressed as Latinised adjective.

**D i a g n o s i s :** A medium sized brown *Clivina* species with conspicuous subcylindrical habitus. Distinguished from the most similar species *C. rugosofemoralis* BALKENOHL by the convex frons with rough irregular transverse rugae and the raised clypeal field separated from frons by a transverse furrow. Moreover, the antennae are elongated and reaching over the base of the pronotum. The pronotum exhibits a straight reflexed lateral margin. On the elytron the intervals three and four are wider at base and raised with a knob-like carina at interval three. Interval three shows five setigerous punctures and interval eight is carinate in its whole length. In addition both parameres possess two setae at apex.

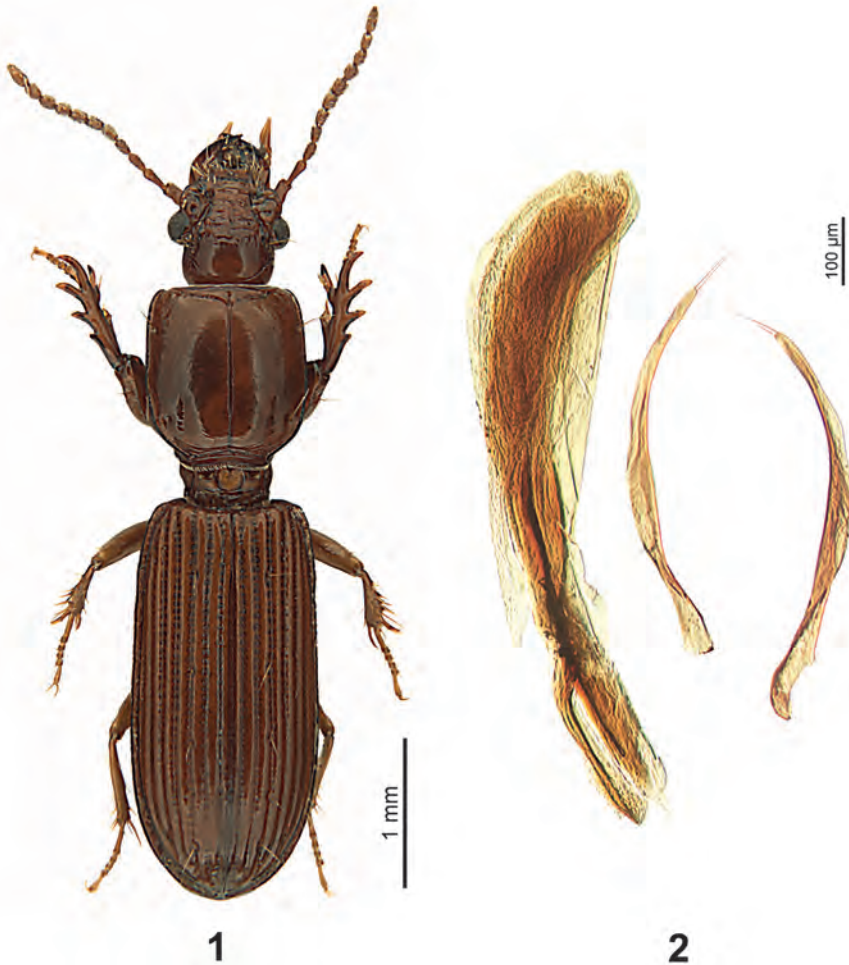
**D e s c r i p t i o n :**

Measurements: Length 5.11 / 5.10 / 5.18 mm; width 1.29 / 1.28 / 1.33 mm; ratio length/width of pronotum 1.11 / 1.13 / 1.12; ratio length/width of elytra 2.14 / 2.22 / 2.16.

Colour: Dorsal and ventral surface glossy; fuscus; apical half of mandibles fuscous, other mouthparts and tarsalia leoninus, antennae and front legs fuscous, intermediate, and hind legs fuscus.

Head (Fig. 1): One fourth smaller than pronotum. Clypeus relatively wide, nearly straight thought slightly emarginated anteriorly, with indistinct tooth at each side, wings of moderate size, separated from and not as far projecting as middle part of clypeus; clypeus, wings, and supraantennal plates indistinctly margined. Clypeal field slightly elevated, separated from frons by transverse furrow. Supraantennal plates vaulted, not as far projecting laterally as eyes, nearly smooth, with obtuse rounded angle anteriorly, separated from wings by distinct notches, with two supraorbital setae at each side situated at mid-eye and posterior eye-level. Supraorbital furrows deep, wide, diverging anterior clypeal foveae in which the clypeal setae are situated, diverging posteriorly and running beyond hind-genae level. Supraorbital carinae small, tubercle-like. Neck constriction indistinct, formed by short longitudinal flat rugae. Frons flattened, covered with rough

irregular to transverse rugae. Eyes projecting laterally. Genae distinct. Antenna elongated, reaching over base of pronotum, segments four to ten somewhat flattened, scapus with longitudinal reticulation, with the seta situated dorsofrontally at apical quarter. Labrum not as wide as middle part of clypeus, amargined, straight, seven-setose, with transverse reticulation. Mandible slightly fractuate basally, lateral margin bent dorsally towards base, with few fine longitudinal carinae in basal half. The two apical segments of maxillary palpus securiform, tip elongated, bent laterally; segment two of labial palpus bisetose, apical segment guttuliform. Ligula wide, ovate, the two apical setae separated.



**Figs 1-2:** *Clivina antoni* nov.sp.: (1) Holotype, habitus; (2) holotype, aedeagus and parameres, dorsal view.

Pronotum (Fig. 1): Slightly elongated, indistinctly convex on disc (lateral view), distinctly convex in frontal view. Anterior angles indistinctly pointed, rounded-off. Posterior

angles small, traceable in dorsal view at 80 times, indistinctly visible as rounded knob in lateral view. Reflexed lateral margin straight and indistinctly converging in anterior half, convex directly before anterior angles, slightly convex to posterior setigerous puncture. Marginal channel wide between setigerous punctures, with row of moderately sized foveae. Posterior setigerous puncture situated in distinct fovea, removed from lateral channel by diameter of pore. Reflexed margin thin in whole length, running from posterior angles to base as slightly sigmoid line. Pleura somewhat swollen, just not visible in dorsal view. Anterior transverse line deep, reaching anterior margin, not joining lateral margin, interrupted at middle. Median line deep, complete, surpassing anterior transverse line without fusing, narrow towards base. Surface smooth on disc, basal impression formed by longitudinal group of deep foveae, with some short broad transverse rugae at base and laterally.

Elytra (Fig. 1): Subcylindric, flattened in lateral view, distinctly convex in frontal view. Lateral margin nearly straight, contracted to humerus and in apical third. Humerus rounded obtuse-angularly. Base concave at declivity, intervals at declivity somewhat overhanging over pedunculus, distinctly margined from humerus to peduncle. Setigerous tubercle at base of first stria. Scutellar stria absent. Striae punctuate-striate, one to three free at base, four to seven joining at base, one and seven, three and four, five and six joining apically. Intervals convex, eights distinctly carinate in whole length, seventh with short carina at humerus and apex, third and fourth at base wider and distinctly raised, third at base with knob-like carina. Marginal channel with uninterrupted series of setigerous punctures, another series of setigerous punctures situated mesially. Third interval with five setigerous punctures, all approaching third stria. Base with small band of isodiametric reticulation. Reflexed lateral margin crenulate, more distinct in basal half.

Hind wings: Fully developed.

Ventral surface: Proepisternum nearly smooth at middle, laterally covered with distinct isodiametric reticulation and some transverse wrinkles, submarginal furrow complete. Epipleuron with distinct isodiametric reticulation. Abdomen laterally with distinct isodiametric reticulation, smooth at middle but with irregular situated punctures at all tergites, punctures of terminal segment bigger, the two apical setigerous punctures widely separated.

Legs: Profemora with few and slight longitudinal rugae ventrally, protibia with distinct and complete carina and sulcus dorsally, terminal spine wide, ensiform, turned distinctly ventrally and laterally; movable spur as long as spine, sharp, turned slightly ventrally, three praeapical lateral denticles wide, ensiform, setae at all denticles fractuate. First segment of protarsus as long as segments two to four together. Intermediate tibia with distinct spur apically, furnished with arcuate seta; all terminal tarsomeres with long claws.

Male genitalia (Fig. 2): Median lobe slender, slightly arcuate at middle, distinctly arcuate apically. Endophallus strongly folded, with some minute knobs laterally. Both parameres slender, arcuate, distorted, with two setae of different length at apex.

Female genitalia: Unknown.

Variation: Variation was observed in the structure of the rough transverse rugae on the frons of the head. The transverse furrow, separating the clypeal field from the frons is more or less interrupted at middle.

**Distribution:** Known from the type locality 5 km East of Luang Prabang.

**Habits:** According to the collector, the light trap was positioned near the river with partially open view to the muddy bank. N 19°53'03'', E 102°11'13'', altitude 300 m. The specimens were collected together with *Clivina mekongensis* LESNE.

**Relationships:** Possible relationships have been already pointed out in the description of *Clivina rugosofemoralis* BALKENOHL (BALKENOHL 1999). In that contribution it was emphasized the species might represent a member of a separate new group among the genus *Clivina* not yet characterised especially. *C. antoni* nov.sp. is another example for this hypothesis.

### **Genus *Trilophidius* JEANNEL, 1957**

Type species: *Trilophus congoanus* BURGEON, 1935.

#### ***Trilophidius planophthalmus* nov.sp. (Figs 3-6)**

**Type material:** Holotype: ♂, with label and data: yellow, black printed: "N LAOS iv. 1993 10 km N Luang-Prabang Mekhong river, 240km N Vientiane, hills ca. 250m poor settlement, prim. veget. lux, leg. Insomsay Somsy" (MFNB). Paratypes: 2♂♂, 2♀♀, 6 specs., same data as holotype; 2 specs., same data as holotype but iii. 1993 (MFNB, CBB).

**Remarks:** In the holotype, the right antennae is glued at joint four but complete. Most of the paratypes are more or less damaged, e.g. with missing parts of legs, crashed pronotum, and in one case a missing elytron. One of them could not be included in the measurements.

**Etymology:** The name is derived from the flattened eyes and is a composite from the Latin 'planus' and the Greek 'ophthalmos' (ophthalmus in Latin).

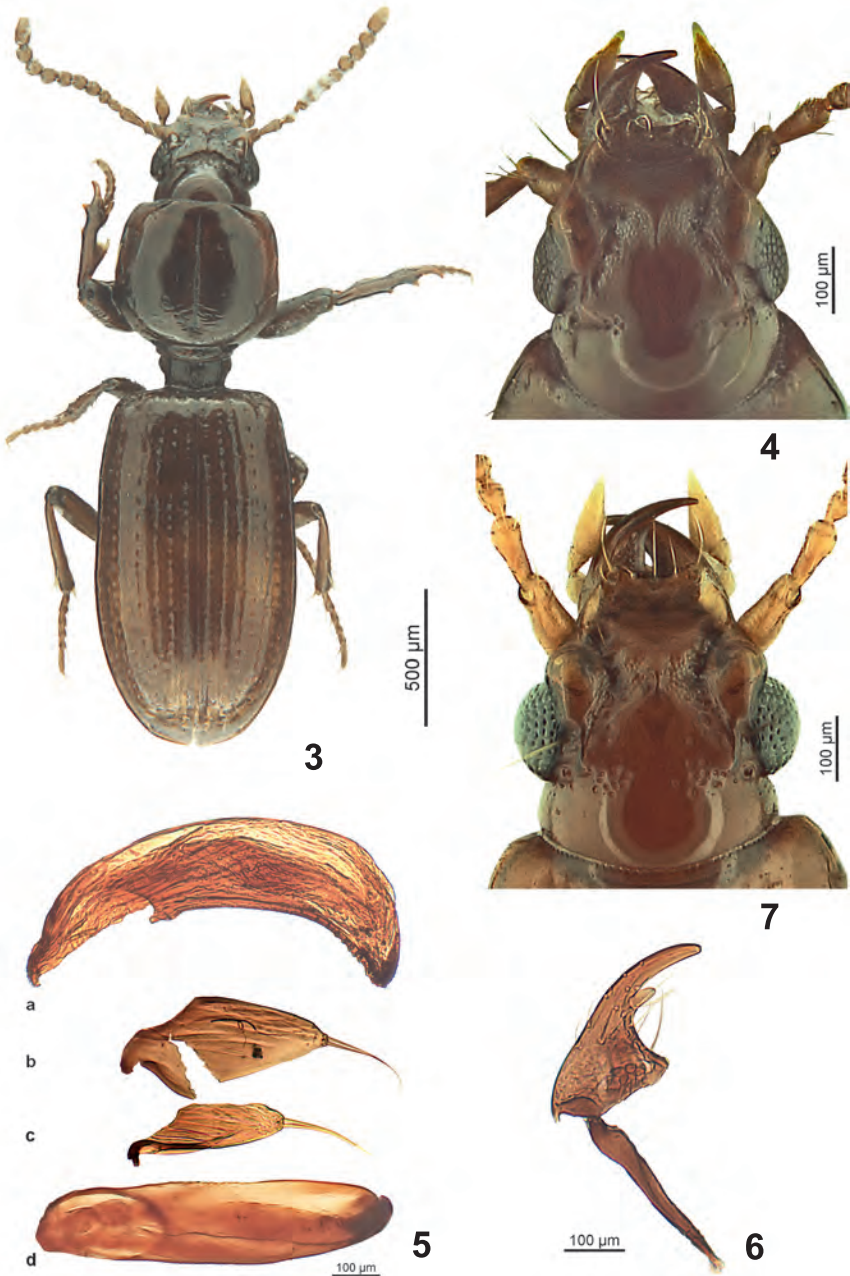
**Diagnosis:** A distinctly brown *Trilophidius* species with subelongate elytra having the maximum width behind middle, six setigerous punctures on the third interval, an incomplete fold-like carina in the channel at the apex of the elytra, and a broadly interrupted series umbilicata in the marginal channel of the elytron. Distinguished directly from all other Oriental species by the black and conspicuously flattened eyes and the distinctly convex frons of the head.

#### **Description:**

Measurements: Length 2.22-2.45 mm ( $\bar{x}$  = 2.31 mm\*), width 0.71-0.83 mm ( $\bar{x}$  = 0.79 mm\*), ratio length/width of pronotum 1.0-1.05 ( $\bar{x}$  = 1.02\*), ratio length/width of elytra 1.68-1.82 ( $\bar{x}$  = 1.76\*); (\*n = 10).

Colour: Uniformly fuscus. Palpi leoninus. Eyes piceus. Wings of clypeus and supraantennal plates slightly translucent. Pronotum towards base, disc of elytron, and antennae somewhat more pale.

Head (Fig. 3, 4): A third smaller than pronotum. Clypeus and wings finely reflexed margined; clypeus indistinctly excised to straight anteriorly, meshed with transverse reticulation; wings tooth-like projecting, fused with clypeus, divided from supraantennal plates by distinct obtuse-angled notches; supraantennal plates amargined, convex, prolonged posteriorly as blunt supraorbital-carina, interrupted at mid-eye level;



**Figs 3-7:** *Trilophidius planophthalmus* nov.sp.: (3) Holotype, habitus; (4) Head dorsal view; (5) Holotype, aedeagus (a) and parameres (b, c) dorsal view, aedeagus lateral view (d); (6) Female coxostylus; (7) *Trilophidius impunctatus* PUTZEYS, head, dorsal view.

triangular-like tubercle on vertex elongated posteriorly into a sharp keel, with isodiametric reticulation posterior tubercle. Clypeus and frons divided from supraantennal plates by deep and broad longitudinal furrows with roughly meshed reticulation. Furrows diverging posteriorly. Frons distinctly convex, smooth and with few minute punctures. Neck constriction distinct at posterior-eye level, composed of small to medium sized irregularly arranged band of punctures, more or less interrupted at middle. Eyes distinctly flattened; ommatidia distinct, slightly convex; genae and temporae small. Labrum slightly excised, with irregular reticulation, five-setose. Mandibles distinctly acute at apex. Apical segment of maxillary palpomere conspicuously securiform, with four setae ventrally; terminal segment of labial palpomere bottle-like, penultimate segment bisetose. Mentum and submentum divided by deep furrow, with two pairs of setae each, median tooth triangular, acute at apex, lobes moderately elongate, longer than tooth, rounded anteriorly, with longitudinal reticulation. Gula nearly smooth at middle, with irregular reticulation laterally. Antennae short, just reaching posterior setigerous puncture of pronotum, segment five to ten moniliform.

Pronotum (Fig. 3): Outline subglobose, as long as wide, maximum width at middle. Disc convex. Anterior margin nearly straight. Reflexed lateral border distinct anteriorly, prolonged finely to posterior setigerous puncture. Proepisternum distinctly tumid laterally and well visible in dorsal view, most distinct in posterior third. Anterior angles distinct, obtuse-angular, bent downwards. Anterior transverse line visible at anterior angles. Median line distinct, sharp, deeper and broader towards base, not reaching anterior margin, not reaching channel of basal constriction. Surface with some fine irregular transverse wrinkles at median line towards base, basal impression absent. Ring-like flange convex, three times as broad as channel of deep basal constriction.

Elytra (Fig. 3): Convex in lateral and apical view. Anterior half slightly flattened for a short distance (lateral view). Subelongate, sides slightly rounded anterior middle and diverging, evenly rounded in apical third. Maximum width behind middle. Base slightly obliquely truncated. Marginal channel narrowed at middle of elytron, series of umbilical setigerous tubercles distinctly interrupted at middle, fold-like carina at apex incomplete, indistinct in the holotype and most of the paratypes. Humeral tooth small, situated in extended projection of seventh interval. With two basal tubercles with setigerous punctures adjoining lateral margin at humerus, a distinct tubercle in the extended projection of the second stria. Scutellar stria visible as very fine line. First stria deep up to tip of apex, stria two and three fairly deep, punctuate, other striae developed as rows of punctures, becoming fine apically; stria four shortened at base. Intervals slightly convex, eights forming obtuse overhanging carina in apical two-fifths, third with series of five to six fine setigerous punctures situated at the third stria in anterior half and towards the middle of the interval posteriorly.

Hind wings: Fully developed.

Ventral surface: Proepisternum with few transverse wrinkles and minute punctures, fine submarginal furrow visible in anterior quarter, furrow between prosternum and proepisternum invisible in anterior third. First and second abdominal sternites with isodiametric reticulation. Legs: Protibia: Surface with fine longitudinal reticulation, nearly smooth; lateral upper spine curved ventrally. Movable spur smaller than spine, nearly straight, apically curved. Praeapical lateral denticle robust, sharp, second one smaller.



Profemur dorso-laterally with distinct coriaceous notches. Intermediate tibia with indistinct preapical tubercle furnished with seta. Hind legs: Tarsomere one nearly as long as two and three combined.

Sexual dimorphism: Terminal segment of abdominal sternite nearly smooth in the male, and with irregular reticulation in apical half in the female (160 times).

Male genitalia (Fig. 5): Median lobe slightly arcuate in the middle part, distinctly arcuate in apical quarter. Nearly straight in lateral view, with wrinkles laterally anterior basal opening. Apex acute and flattened, with nodules laterally. Endophallus with two teeth. Parameres somewhat distorted, both of them with two long setae at apex, petioles short, nearly right-angled.

Female genitalia (Fig. 6): Coxostylus one and two fused. Distinctly broadened basally, conspicuously curved, slender and acute at apex, with 4 dorsal and 5 ventral nematiform setae in the basal half and one big peg-shaped ensiform seta.

Variation: In the 13 specimens investigated the number and the arrangement of punctures of the neck constriction varies and the interruption at middle is more or less distinct. The number of setae on the labrum is usually five but four in three specimen and three on one specimen. Some of the paratypes have one of the eyes slightly more convex than on the other side. In all of these cases the convexity is developed to a degree less than 50% as in the other species of the genus. In few paratypes only five setigerous punctures are visible on the interval three of the elytron.

**D i s t r i b u t i o n :** The species was collected at light in Laos North of Vientiane at an altitude of 250 m.

**R e m a r k s :** The key to the Oriental species provided in BALKENOHL (2017a) can simply be enriched by the first question: 'eyes distinctly convex as it is in the type species of the genus (Fig. 7), or flattened (Fig. 4)'. The second option leads directly to the species described in this contribution. And indeed, out of the eight known species *T. planophthalmus* nov.sp. is the only one not exhibiting globose or distinctly convex eyes. But although the eyes of *T. planophthalmus* nov.sp. are flattened the diameter of the eyes is not much smaller. The eyes seem to work well because the specimens were collected at light.

### **Genus *Rugilucivina* BALKENOHL, 1996**

Type species: *Rugilucivina reticulata* BALKENOHL, 1996.

### ***Rugilucivina alutacea* LESNE, 1896 comb.nov. (Figs 8-11)**

*Clivina alutacea* LESNE, 1896: 241.

*Clivina alutacea* LESNE, 1904: 67.

*Clivina alutacea* LESNE, 1896, BALKENOHL 2001: 14.

*Clivina alutacea* LESNE, 1896, LORENZ 2005: 141.

*Clivina alutacea* LESNE, 1896, BALKENOHL 2017b: 254.

**T y p e m a t e r i a l :** Holotype: ♀, with labels and data: beige, circular, handwritten with black ink "2579 86", backside yellow / light-brown, rectangular, printed "MUSEUM PARIS CAMBODGE A. PAVIE 1886" / beige, rectangular, handwritten with black ink "Clivina alutacea Lesne Type" / beige, rectangular, handwritten with black ink and printed "alutacea Lesne TYPE det. K. Kult 57"; labels as in Fig. 9 (MNHN).

**Remark:** The holotype is not in a good condition. The pieces of the body were mounted together some time ago with black glue. The same is true for some of the specimens from the additional historic material. In the holotype the following parts are missing: Left antennae from joint three onwards, right one from joint six onwards; movable spur of left front tibia, terminal three tarsalia of left intermediate leg and the complete right hind leg. The right elytron and the dorsal integument shows a big whole where the original not sharpened pin was placed.

**Additional material** seen by LESNE: 1 spec. with labels and data: beige, circular, handwritten with black ink "1036 75" backside yellow / light-brown, rectangular, printed "MUSEUM PARIS COCHINCHINE JULIEN 1875" / beige, rectangular, handwritten with black ink "Clivina alutacea Lesne" (MNHN). 1♂, 1 spec., with labels and data: beige, circular, handwritten with black ink "2579 86" backside yellow / light-brown, rectangular, printed "MUSEUM PARIS CAMBODGE A. PAVIE 1886" (MNHN). 2 specs., with labels and data: beige, circular, handwritten with black ink "1036 75" backside yellow / light-brown, rectangular, printed "MUSEUM PARIS COCHINCHINE JULIEN 1875" (MNHN).

**Diagnosis:** A medium sized black *Rugilucivina* species with multiple fine carinae on the frons of the head, shorter and completely reticulated elytra. Distinguished from the most similar species *R. reticulata* BALKENOHL by the completely convex and smooth reflexed lateral margin of the pronotum. In addition, the intervals of the elytra are convex, the second setigerous puncture on interval three is situated behind middle, and the striae one and two, three and four, and five and six joining at apex. Moreover, the aedeagus and the apical setae of the male parameres exhibit a different pattern.

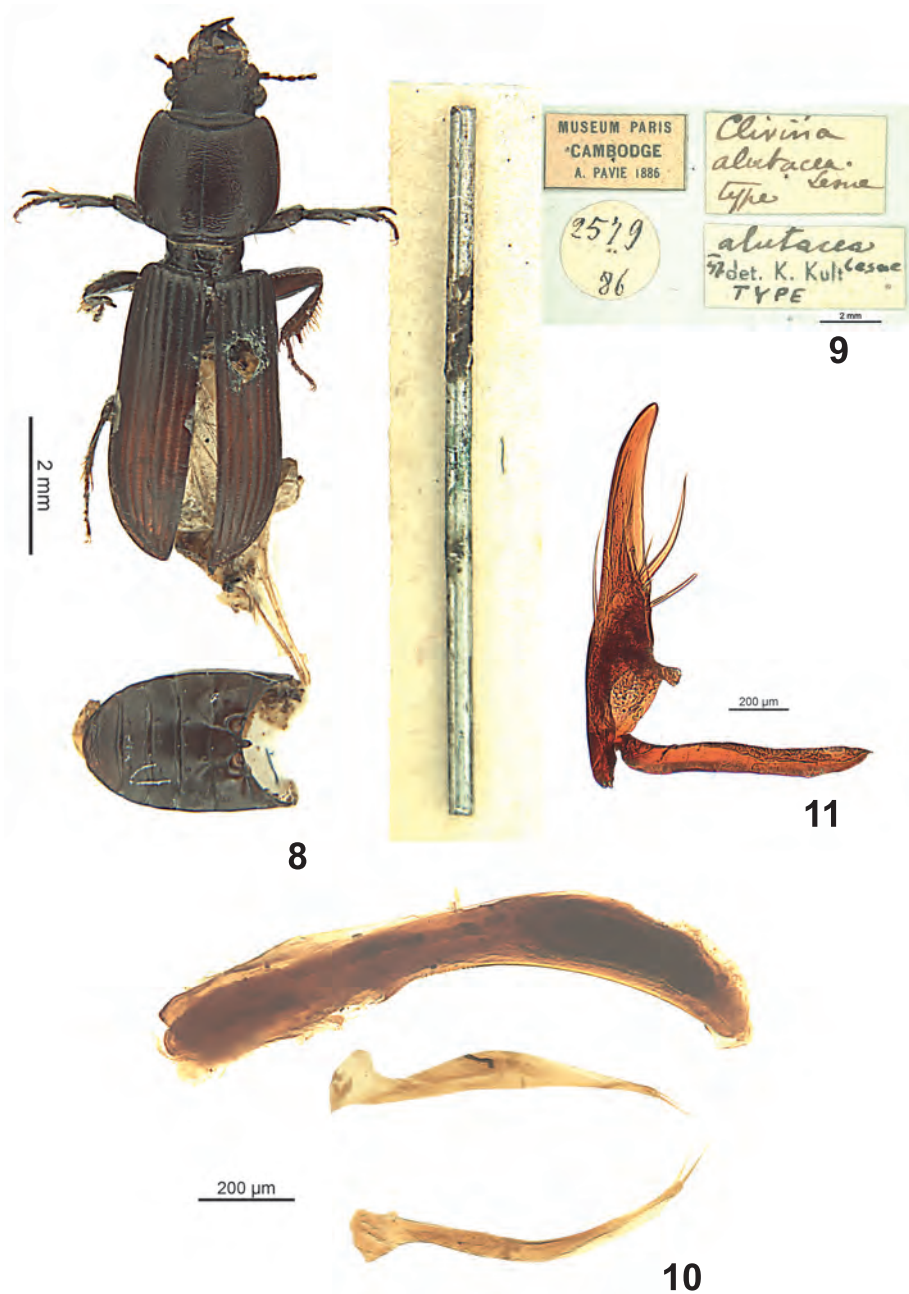
#### Redescription:

Measurements: Holotype: Body length 8.12 mm; width 2.31 mm; ratio length/width of pronotum 0.89; ratio length/width of elytra 1.90.

Other material: Body length 7.44-8.12 mm ( $\bar{x} = 7.79$  mm\*); width 2.14-2.40 mm ( $\bar{x} = 2.25$  mm\*); ratio length/width of pronotum 0.89-0.91 ( $\bar{x} = 0.89$ \*); ratio length/width of elytra 1.88-1.95 ( $\bar{x} = 1.90$ \*); (\*n = 6).

Colour: Dorsal and ventral surface dull; nigricans; mandibles niger; mouthparts, intermediate and hind legs fuscus; antennae with scapus and pedicellus fuscus, other parts nigricans.

Head (Fig. 8): One fourth smaller than pronotum. Outline subsquare. Clypeus relatively wide, straight anteriorly, with two teeth anteriorly, reflexed margined, separated from frons by deep transverse furrow, distinctly separated from wings by notches, surface with five carinae in form of an inverted V. Wings somewhat wider than teeth of clypeus, as far projecting anteriorly as teeth of clypeus, surface with few longitudinal rugae. Supraantennal plates vaulted, laterally amargined, projecting widely laterally up to mid-eye level, with small obtuse rounded angle anteriorly, projecting anteriorly less far as wings, separated from wings by distinct notches, surface with irregular longitudinal carinae. Furrows between clypeus, wings, supraantennal plates joining posteriorly. Two clypeal setae situated at joining point of furrows, joined furrows joining with transverse furrow at level of mid-eye. Supraorbital furrow deep, wide, diverging posteriorly and running to level of posterior third of eye. Supraorbital carina invisible, bilaterally with two distinct supraorbital setigerous punctures. Frons distinctly convex, surface with irregular carinae laterally and at level of transverse furrow, completely irregular and fine at middle. Neck constriction slight but well visible laterally. Eyes subglobose, projecting



**Figs 8-11:** *Rugiluvina alutacea* LESNE: (8) Holotype, habitus, with original mounting card and pin; (9) Original labels; (10) Aedeagus and parameres, dorsal view, specimen from Cambodia; (11) Female coxostylus, holotype.

laterally, genae indistinct. Antenna elongated, ratio length/width of segments four and five 1.82, scapus with longitudinal reticulation, seta on scapus situated dorso-frontally at apical tip, segment two attached eccentrically, segment three pubescent in apical two-thirds, fully pubescent from segment four onwards. Labrum wider as clypeus, bilobed, conspicuously excised at middle, amargined, six-setose, ciliate laterally, surface with transverse reticulation in basal part. Mandible distinctly shorter than head, slender in apical third, acute, apical half bent dorsally, with few longitudinal carinae. Maxillary palpus slender, two apical segments bent laterally. Apical segment of labial palpomere fusiform, segment two tumid, with one seta. Ligula long, wide, spatulate, with small tooth at each side, with one apical setigerous puncture.

Pronotum (Fig. 8): Subquadrate, slightly convex on disc (lateral view), distinctly convex in frontal view. Anterior angles pointed, slightly rounded and projecting. Posterior angles distinct, obtusely toothed. Reflexed lateral margin distinctly convex, more rounded to angles in anterior and posterior quarter. Lateral channel narrow, of same size in whole length, anterior setigerous puncture connected with channel, posterior seta removed from channel by diameter of pore. Base slightly produced at middle. Reflexed margin smooth, thin in whole length, running from posterior angles to base as straight line. Anterior transverse line deep, reaching anterior margin, not joining lateral margin. Median line distinct, complete, joining with anterior transverse line, narrow towards base. Dorsal surface conspicuously coreaceous, lateral transverse rugae indistinct or missing, with isodiametric reticulation baso-laterally. Basal impressions short, indistinct.

Elytra (Fig. 8): Cylindric, slightly transversally depressed in anterior third in lateral view, distinctly convex in frontal view. Slightly dilated in apical half, slightly contracted to humerus. Humerus rounded, rectangular. Base concave at declivity, finely margined from humerus to peduncle, declivity slightly overhanging over parts of peduncle, setigerous puncture at base of first stria, with one small tubercle at base of each free interval. Scutellar stria indistinct, without tubercle-like carina. Striae punctuate-striate, one to four free at base, two to six not reaching tip of apex, one and two, three and four, and five and six joining at apex. Intervals flattened to moderately convex, seventh carinate at humerus and apex, eights completely carinate. Interval three with four setigerous punctures, situated at the third stria, second setigerous puncture situated distinctly behind middle of elytra. Reflexed lateral margin smooth. Whole surface covered with dense isodiametric reticulation.

Hind wings: Fully developed.

Ventral surface: Proepisternum covered with distinct isodiametric reticulation and some transverse wrinkles, submarginal furrow complete. Epipleuron with distinct isodiametric reticulation. Abdomen covered with distinct isodiametric reticulation, the two apical setigerous punctures on terminal segment widely separated.

Legs: Protibia with distinct and complete carina and sulcus dorsally, lateral upper spine ensiform, turned distinctly ventrally and slightly laterally; movable spur ensiform, turned indistinctly ventrally. Three preapical lateral denticles distinct, obliquely truncated. First segment of protarsus longer than segments two to four together, with rows of setae dorsally. Intermediate tibia with distinct spur preapically, furnished with seta, inner side with few setae.

Sexual differences: Male: Terminal sternite fuscous; apical half with two blunt carinae, with irregular grain-like rugae. Female: Apical half of terminal sternite with irregular to transverse rugae, free of reticulation at middle.

Male genitalia (Fig. 10): Median lobe slender, nearly straight in basal half, moderately and equally arcuate in apical part. Endophallus densely folded. Both parameres slender, moderately arcuate, somewhat distorted, dorsal one with two longer and two smaller and ventral one with two longer and one smaller nematiform setae at apex.

Female genitalia (Fig. 11): Coxostylus slightly sigmoid, dorso-ventrally moderately depressed, gently curved to apex, apex aetose, with one big robust and three medium sized nematiform setae in middle part, laterally with one long thin seta.

Variation: In the holotype the left tooth of clypeus is broadened and not acute.

Additional material: Some specimens are not as black as the holotype, thought slightly more piceous. Variation was also noted for the frons of the head within the irregularity of the rugae.

**Distribution:** According to the labels, the original description (in Latin) and the rewriting (in French) of LESNE (1896, 1904), the specimens were collected in "Conchinchine" and "Cambodge" without further specification. These are old terms for the South of Vietnam (geographically) and parts of East of Cambodia.

**Relationships:** The species *R. alutacea* and *R. reticulata* seem to be vicarious species, one occurring at the border to the Palearctic region and the other in the middle of the tropical belt.

***Rugiluclivina julieni* LESNE, 1896 comb.nov. (Figs 12-15)**

*Clivina julieni* LESNE, 1896: 240.

*Clivina julieni* LESNE, 1904: 68.

*Clivina julieni* LESNE, 1896, BALKENOHL 2001: 15.

*Clivina julieni* LESNE, 1896, LORENZ 2005: 143.

*Clivina julieni* LESNE, 1896, BALKENOHL 2017b: 255.

**Type material:** **Holotype:** ♀, with labels and data: beige, circular, handwritten with black ink "1036 75", backside yellow / light-brown, rectangular, printed "MUSEUM PARIS COCHINCHINE JULIEN 1875" / handwritten with black ink "Clivina Julieni Lesne Type" / red, rectangular, printed "TYPE" / beige, rectangular, handwritten with black ink and printed "Julieni Lesne det. K. Kult 57 TYPE"; labels as in Fig. 13 (MNHN).

**Additional material** seen by LESNE: 1♂, with labels and data: brown, rectangular, printed "MUSEUM PARIS TONKIN CENTR. RIVIÈRE CLAIRE RÉG. DE TUYEN-QUAN ET DE BAC MUC A. WEISS 1901" / beige, small, rectangular, printed "oct.-dec." / beige, rectangular, handwritten with black ink and printed "Clivina Julieni Lesne P. Lesne vid. 1901 (MNHN). 1 spec., with labels and data: beige, circular, handwritten with black ink "1036 75" backside yellow / light-brown, rectangular, printed "MUSEUM PARIS COCHINCHINE JULIEN 1875" / beige, rectangular, handwritten with black ink and printed "Clivina Julieni Lesne P. Lesne vid. 1901; pronotum and head missing (MNHN). 1 spec., with labels and data: beige, circular, handwritten with black ink "1282 75" backside purple / beige, rectangular, handwritten with black ink "Auckland M. Hutton" / beige, handwritten with black ink "Clivina Julieni Lesne" / beige, rectangular, handwritten with black ink and printed "Clivina Julieni Lesne P. Lesne vid." (MNHN).

**Diagnosis:** A medium sized piceous *Rugiluclivina* species with multiple fine carinae on the frons of the head, and finely but completely irregularly reticulated pronotum and elytra. Distinguished from the most similar species *R. puncticollis* BALKENOHL by the darker colour of the body, the irregular reticulation of the elytra and pronotum, and the convex lateral margin of the pronotum. In addition, the intervals of the elytra are flattened, the striae are narrower and not as deep as in *R. puncticollis*, and interval five

shows also a tubercle at base. Moreover, the base of the elytra is not as distinctly concave, the apical carina of stria seven is not developed, and the front tibia shows dorsally a complete carina and sulcus. Moreover in both sexes the terminal sternite exhibits in the apical half a different pattern of the surface.

**Redescription:**

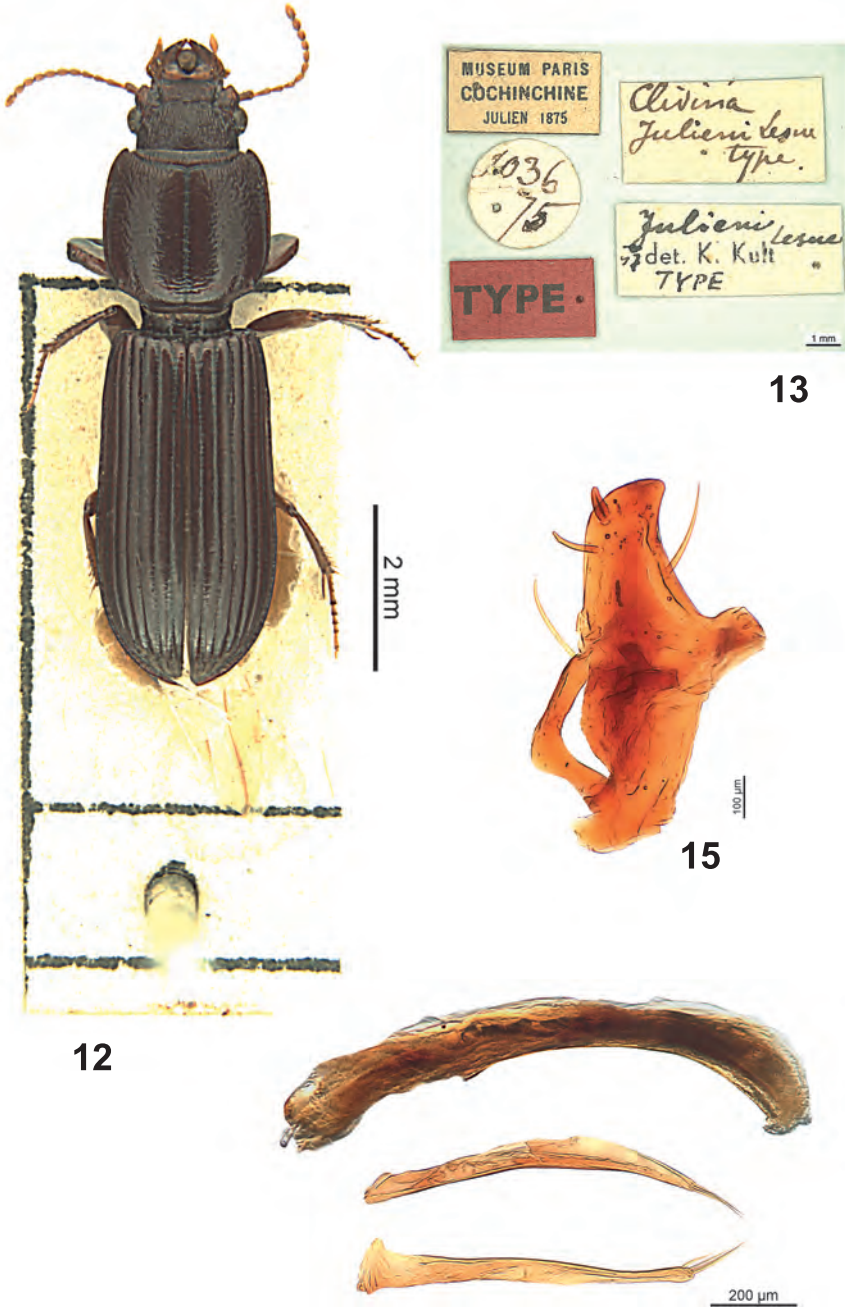
Measurements: Holotype: Body length 7.99 mm; width 2.16 mm; ratio length/width of pronotum 0.97; ratio length/width of elytra 2.03.

Other material: Body length 7.31 / 7.62 mm; width 1.93 / 1.86 / 2.10 mm; ratio length/width of pronotum 1.01 / 1.00; ratio length/width of elytra 2.03 / 2.03 / 2.05 (in one spec. head/pronotum missing, see material).

Colour: Pronotum and elytra subopaque, ventral surface dull; piceous; mandibles piceous; mouthparts and antennae fuscus, intermediate and hind legs fuscus. Reflexed lateral margin of pronotum translucent.

Head (Fig. 12): One fourth smaller than pronotum. Outline subsquare. Clypeus relatively wide, straight anteriorly, with two acute teeth anteriorly, reflexed margined, separated from frons by deep transverse furrow, distinctly separated from wings by notches, surface with three to four irregular and convex carinae. Wings wider than teeth of clypeus, as far projecting anteriorly as teeth of clypeus, surface smooth. Supraantennal plates vaulted, laterally reflexed margined, projecting widely laterally up to mid-eye level, with obtusely rounded angle anteriorly, projecting anteriorly less far as wings, separated from wings by distinct notches, surface with irregular longitudinal carinae. Furrows between clypeus, wings, supraantennal plates joining posteriorly. Two clypeal setae situated at joining point of furrows, joined furrows prolonged posteriorly and joining with transverse furrow at level of mid-eye. Supraorbital furrow deep, wide, diverging posteriorly and running to level of posterior third of eye. Supraorbital carina invisible, bilaterally with two distinct supraorbital setigerous punctures. Frons distinctly convex, surface completely covered with longitudinal carinae. Neck constriction indistinct. Eyes subglobose, projecting laterally, genae indistinct. Antenna elongated but not reaching posterior setigerous puncture of pronotum, ratio length/width of segments four onwards 1.73, scapus with isodiametric reticulation, seta on scapus situated dorso-frontally at apical tip, segment two attached eccentrically, segment three pubescent in apical three-fourths, fully pubescent from segment four onwards. Labrum as wide as clypeus, bilobed, conspicuously excised at middle, amargined, six-setose, ciliate laterally, surface with irregular reticulation. Mandible distinctly shorter than head, slender in apical third, acute, apical half bent dorsally, with few longitudinal carinae. Maxillary palpus slender, two apical segments bent laterally. Apical segment of labial palpomere fusiform, segment two tumid, with one seta. Ligula long, wide, spatulate, rounded laterally, with one apical setigerous puncture.

Pronotum (Fig. 12): Subquadrate, flattened on disc in basal two thirds (lateral view), distinctly convex in frontal view. Anterior angles acute, slightly projecting. Posterior angles distinct, obtusely toothed. Reflexed lateral margin slightly but distinctly convex at middle part, more rounded to angles in anterior fifth and posterior quarter. Lateral channel moderately wide, of same size in whole length, anterior setigerous puncture connected with channel, posterior seta removed from channel by diameter of pore. Base moderately produced at middle. Reflexed lateral margin subcrenulated (80 times), running from posterior angles to base as slightly concave line. Anterior transverse line deep,



**Figs 12-15:** *Rugilucivina juliene* LESNE: (12) Holotype, habitus, original historic mounting; (13) Original labels; (14) Aedeagus and parameres, dorsal view, specimen from Bac Muc; (15) Female coxostylus, holotype.

reaching anterior margin, not joining lateral margin. Median line distinct, complete, joining with anterior transverse line, narrow towards base. Dorsal surface covered with irregular reticulation (best visible at 80 times), with distinct transverse rugae, with longitudinal cloud of punctures bilaterally in basal half, rugae at anterior transverse line longitudinal, with transverse reticulation baso-laterally. Basal impressions short.

Elytron (Fig. 12): Cylindriform, slightly transversally depressed in anterior half in lateral view, distinctly convex in frontal view. Slightly dilated in apical half, contracted to humerus. Humerus rounded, obtuse-angular. Base indistinctly concave at declivity, margined from humerus to peduncle, declivity slightly overhanging over parts of peduncle, setigerous puncture at base of first stria, with one small tubercle at base of interval two to five. Scutellar stria short, indistinct, with carina-like margin at suture. Striae narrow, not deep, punctuate-striate, punctures distinct, one to four free at base, one and two, three and four, five and six joining at apex. Intervals flattened, seventh and eights carinate at humerus, eights carinate at apex, carina of stria seventh at apex indistinct or missing. Interval three with three setigerous punctures, situated at third stria. Reflexed lateral margin smooth. Whole surface covered with fine irregular reticulation (structure best visible at 80 times).

Hind wings: Fully developed.

Ventral surface: Proepisternum covered with distinct irregular to isodiametric reticulation, with transverse rugae laterally, submarginal furrow complete. Epipleuron with distinct isodiametric reticulation. Abdomen laterally with isodiametric reticulation, smooth and with slight transverse rugae at middle, the two apical setigerous punctures widely separated.

Legs: Protibia with distinct and complete carina and sulcus dorsally, lateral upper spine ensiform, turned distinctly ventrally and slightly laterally; movable spur shorter than spine, ensiform, turned slightly ventrally. Three preapical lateral denticles distinct, obliquely truncated. First segment of protarsus longer than segments two to four together, with rows of setae dorsally. Intermediate tibia with distinct spur preapically, furnished with seta, inner side with few setae.

Sexual differences: Male: Apical half of terminal sternite with a sharp transverse carina subapically, with second short and blunt carinae in apical third, laterally with longitudinal rugae. Female: Apical half of terminal sternite with two transverse carinae at middle situated in apical third, laterally with some short and rough longitudinal carinae.

Male genitalia (Fig. 14): Median lobe elongated, slender, slightly arcuate in middle part, distinctly arcuate towards apex, laterally flattened. Endophallus strongly folded, with group of small knobs laterally. Both parameres slender, dorsal one arcuate, somewhat distorted, both with three long nematiform setae at apex and one seta subapically, in the ventral one the subapical seta is minute, in the ventral one smaller than the other setae.

Female genitalia (Fig. 15): Coxostylus short, sturdy, slightly arcuate at apex, with one big peg-shaped seta in apical part, two medium sized nematiform setae in middle part, and one baso-laterally.

Variation: In the holotype, interval seven shows at apex an indistinct carina at the right and no carina at the other side. In other material, interval seven shows no apical carina.

Distribution: The holotype and one other specimen was collected in 'Conchinchine', today the South of Vietnam and parts of Cambodia. Another specimen



is recorded from the North of Vietnam. An additional specimen is labelled "Auckland". Without further records it cannot be decided if the species really occurs in New Zealand as well or if this is a labelling-error.

***Rugiluvivina puncticollis* BALKENOHL, 1996**

- Rugiluvivina puncticollis* BALKENOHL, 1996: 33.  
*Rugiluvivina puncticollis* BALKENOHL, 1996, BALKENOHL 2001: 20.  
*Rugiluvivina puncticollis* BALKENOHL, 1996, BALKENOHL 2015: 10.  
*Rugiluvivina puncticollis* BALKENOHL, 1996, LORENZ 2005: 145.

**M a t e r i a l e x a m i n e d :** obviously seen by LESNE but not published yet: 5 specs., with labels and data: beige, circular, handwritten with black ink "1036 75", backside yellow / light-brown, rectangular, printed "MUSEUM PARIS COCHINCHINE JULIEN 1875" (MNHN). 1 spec., with labels and data: beige, circular, handwritten with black ink "2579 86" backside yellow / light-brown, rectangular, printed "MUSEUM PARIS CAMBODGE A. PAVIE 1886" / beige, rectangular, handwritten with black ink "Clivina Julieni Lesne", both elytra and hind legs missing (MNHN). 1 spec., with labels and data: beige, circular, handwritten with black ink "2579 86" backside yellow / light-brown, rectangular, printed "MUSEUM PARIS CAMBODGE A. PAVIE 1886", right intermediate and hind leg as well as antennae missing (MNHN). 1 spec., with labels and data: brown, rectangular, printed "MUSEUM PARIS TONKIN CENTR. RIVIÈRE CLAIRE REGION DE BAC-MUC ET VINH-THUY A. WEISS 1901" / beige, small, rectangular, printed "oct.-dec." (MNHN). 1 spec., with labels and data: light-brown, rectangular, printed "MUSEUM PARIS INDO-CHINE franç. PRINCIPAL: DU TONKIN J. LEVASSEUR 1910" (MNHN). 1 spec., with labels and data: light-brown, rectangular, printed "MUSEUM PARIS TONKIN N. ENV. D'HA-GIANG Lieut. Col' BONIFACI 1914" (MNHN). 1 spec., with labels and data: light-brown, rectangular, handwritten with black ink "Siam" / beige, printed "MUSEUM PARIS Ex Coll. M. MAINDRON Coll. G. BABAULT 1930" / light-brown, handwritten with black ink "Clivina Julieni Lesne comparè au type" (MNHN). 2 specs., with labels and data: beige, rectangular, printed "MUSEUM PARIS Ex Coll. M. MAINDRON Coll. G. BABAULT 1930" / light-brown, handwritten with black ink "Tonkin Fouquet" (MNHN).

**Identification key to the species of the genus *Rugiluvivina***

- 1 Third interval of elytron with 4 setigerous punctures; labrum finely margined.....4
- Third interval of elytron with 3 setigerous punctures; labrum not margined.....2
- 2 Surface of elytra covered with irregular reticulation, sub-opaque; surface of pronotum with irregular reticulation on disk and among rugae and punctures; reflexed lateral margin of pronotum subcrenulated, lateral channel and reflexed margin translucent; lateral margin of pronotum slightly but distinctly convex at middle, posterior angles obtusely toothed; body length 7.3-8.0 mm ..... *julieni* LESNE
- Surface of elytra smooth, glossy; surface of pronotum glossy, also among rugae; reflexed lateral margin of pronotum smooth, lateral channel and reflexed margin not translucent; lateral margin of pronotum straight at middle, posterior angles with acute tooth .....3
- 3 Elytra slightly dilated in apical half; the two setae of ligula separated; dorsal surface of pronotum with punctures forming a more or less indistinct "Y" bilaterally; base of pronotum moderately produced; reflexed lateral margin of pronotum running from posterior angle to base as concave line; transverse furrow of clypeus not deep; intervals of elytra convex; body length 5.7-6.8 mm.....*puncticollis* BALKENOHL
- Elytra not dilated in apical half; the two setae of ligula close together; dorsal surface of pronotum with transverse rugae; base of pronotum distinctly produced; reflexed lateral margin of pronotum running from posterior angle to base as straight line; transverse furrow of clypeus deep; intervals of elytra flattened; body length 8.0-10.3mm .....  
..... *rugicollis* BALKENOHL

- 4 Interval 8 of elytron carinate from humerus to apex without interruption; reflexed lateral margin of elytron smooth .....5
- Interval 8 of elytron carinate at humerus and at apex, the space in between convex; reflexed lateral margin of elytron finely crenulated .....7
- 5 Black; surface of elytra covered completely with isodiametric reticulation; intervals flattened; striae thin, punctures indistinct; surface of pronotum coreaceate .....6
- Brown; surface of elytra glossy; intervals convex; intervals convex; striae deep, punctures distinct; surface of pronotum glossy; body length 5.0-5.3 mm .....*wrasei* BALKENOHL
- 6 Base of elytra distinctly concave; surface of pronotum glossy between the rugae of the coreaceate pattern; ratio length/width of elytra 2.03; lateral transverse rugae of pronotum distinct; second setigerous puncture on interval 3 of elytron situated distinctly anterior mid-point; posterior angles of pronotum acute, distinct; lateral channel of pronotum wide, crenulated; reflexed lateral margin of pronotum straight at middle; tubercles on intervals 2-5 at base of elytra distinct; body length 7.3-8.3 mm .....*reticulata* BALKENOHL
- Base of elytra slightly concave; surface of pronotum irregularly reticulated between the rugae of the coreaceate pattern; ratio length/width of elytra 1.90; lateral transverse rugae of pronotum indistinct or missing; second setigerous puncture on interval 3 of elytron situated distinctly posterior mid-point; posterior angles of pronotum fine, rounded; lateral channel of pronotum regularly developed, smooth; reflexed lateral margin of pronotum convex, tubercles on intervals 2-5 at base of elytra small; body length 7.4-8.1 mm .....*alutacea* LESNE
- 7 Rufus species; eyes globose, conspicuously protruding laterally; reflexed lateral margin of pronotum convex, channel wide, continued from posterior setigerous puncture to base as concave line; preapical spur of intermediate tibia with two setae at apex; body length 9.0-9.4 mm .....*promineoculata* BALKENOHL
- Leoninus species; eyes moderately convex; reflexed lateral margin of pronotum straight, channel narrow, continued from posterior setigerous puncture to base as straight line; preapical spur of intermediate tibia with one setae at apex; body length 4.0-4.3 mm .....*leonina* BALKENOHL

**R e m a r k :** The records of *Rugiluvivina reticulata* and *R. wrasei* in YANG & TIAN (2008) should be rechecked because the redescriptions prepared from the new specimens quoted do not fit with the original descriptions and the identification key.

### Zusammenfassung

Die neuen orientalischen Arten *Clivina antoni* nov.sp. und *Trilophidius planophthalmus* nov.sp. werden beschrieben, illustriert und differentialdiagnostisch von den ähnlichsten Arten abgegrenzt. Die Arten *Clivina alutacea* LESNE und *C. julienni* LESNE werden an Hand der Holotypen redescribriert und in die Gattung *Rugiluvivina* BALKENOHL eingeordnet. Der Bestimmungsschlüssel zu den Arten der Gattung *Rugiluvivina* wird revidiert und ergänzt.

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