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**New Clivinini from the Oriental region**  
**2. *Clivina rugosofemoralis* nov. spec. and**  
***Rugilivina leonina* nov. spec. from Laos**  
**(Coleoptera, Carabidae, Scaritinae)**

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**Abstract:** Two new species, *Clivina rugosofemoralis* nov. spec. and *Rugilivina leonina* nov. spec., both from Laos are described and illustrated. The species are distinguished from the next related species.

**Key words:** Coleoptera, Carabidae, Scaritinae, *Clivina*, *Rugilivina*, taxonomy, Oriental region.

**Introduction**

Recently, four Clivinini species were discovered in North Vietnam and Laos exhibiting a striking pattern of characters that they could not be placed into any of the species groups known from the Oriental region. Therefore the new genus *Rugilivina* was erected for this group and distinguished from the Oriental genera by a key and other diagnostic characters (BALKENOHL 1996). Among unidentified material, transmitted kindly to me by David W. Wrase (Berlin) there were 2 new Clivinini-species. One of them belongs obviously to *Rugilivina* adding up the number of known species of this genus to 5. The 2<sup>nd</sup> species, belonging to the genus *Clivina* LATREILLE, is remarkable also. It does not fit with the technical characters of the Oriental and Australian *Clivina*-groups according to SLOANE (1896, 1905), KULT (1951), DARLINGTON (1962), or ANDREWES (1929). However, it shares a lot of characters with the genus *Afroclivina* KULT described from Tanganyika (KULT 1959), but is not congeneric with this group. The 2 species are described and illustrated in this contribution.

The material is deposited in the following collections: Collection David W. Wrase, Berlin, Germany (CWB); Collection of author, Denzlingen near Freiburg, Germany (CBA).

Terms, descriptions of characters, and methods were based generally on BALKENOHL (1999). The genitalia dissected were mounted in a medium according to LOMPE (1989). A small transparent Celon-card was used instead of a paper-card and the medium was prepared slightly harder than described by LOMPE. The Celon-cards are stored on the same needle as the specimens but were placed on a slide for microscopic observation. The sclerotized aedeagi were treated with KOH to clear up inner structures.

## Results

### *Clivina rugosofemoralis* nov. spec. (Figs 1, 3, 5)

**Type Material:** Holotype ♂, N Laos, 10 km N Luan Prabang, Mekong river, 240 km N Vientiane, IX 1992, leg. Insomsay Somsy (CWB); Paratypes: 5♂♂, 13♀♀, 4 specimens, same data as holotype (CWB/CBA).

**Diagnosis:** A small middle brown species with irregular to V-shaped carinae on the frons of head. The labrum is amargined and 7-setose, and the maxillary palpus is securiform. At the pronotum, the median line crosses the anterior transverse line without joining, the marginal channel is broadened by a row of foveae, and the bilateral basal impression is formed by a group of small foveae arranged longitudinally. The elytron is slightly dilated in the apical half, has the 4 inner striae free at base, and 4 setigerous punctures in the 3<sup>rd</sup> stria. The front and intermediate tibiae show fractuate lateral setae at the spurs and denticles.

**Description:** Measurements: Length 3.65 - 4.52 mm ( $\bar{x}$  = 4.28 mm\*); including closed mandibles), width 1.0 - 1.22 mm ( $\bar{x}$  = 1.14 mm\*), ratio length/width of pronotum 1.08 - 1.23 ( $\bar{x}$  = 1.10\*), ratio length/width of elytra 2.06 - 2.28 ( $\bar{x}$  = 2.16\*); (\*n = 23).

**Colour:** Dorsal and ventral surface shiny; middle brown; mandibles dark brown, other mouthparts, antennae, intermediate, and hind legs yellow brown, front legs dark brown.

**Head:** One fourth smaller than pronotum. Clypeus wide, nearly straight though slightly undulate anteriorly, with indistinct tooth at each side, wings small, projecting; clypeus, wings, supraantennal plates margined. Supraantennal plates vaulted, projecting broadly laterally but not beyond eyes, covered with longitudinal to irregular carinae, with obtuse rounded angle anteriorly, separated from wings by distinct notches, 2 supraorbital setae at each side situated at mid-eye and hind-eye level, supraorbital furrows conspicuously deep, wide, diverging anterior clypeal foveae in which the clypeal setae are situated, diverging posteriorly and running to hind-genae level. Supraorbital carinae small, running from supraorbital plates to anterior eye level. Neck constriction absent. Frons globose, covered completely with V-shaped and more or less irregular to longitudinal carinae. Median impression on frons more or less distinct. Eyes of moderate size, protruding. Genae indistinct. Antenna just reaching posterior seta of pronotum, segments 4-10 distinctly elongate, segments 6-11 broadened and flattened, seta on scapus situated dorso-frontally at apical tip, segment 2 attached excentrically to scapus, segment 3 sparsely but totally pubescent, fully pubescent from segment 4. Labrum smaller than clypeus, amargined, obtuseangularly excised at middle, 7-setose, ciliate laterally, with isodiametric to transverse reticulation. Mandible slightly fractuate basally, lateral margin bent dorsally in basal half, though somewhat hollowed out concavely, with 2 - 3 fine longitudinal carinae in basal half. Two apical segments of maxillary palpus securiform, bent laterally; segment 2 of labial palpus bisetose, apical segment guttuliform. Ligula wide, ovate, 2 apical setae separated.

**Pronotum:** Slightly elongate, slightly convex on disc (lateral view), moderately convex in frontal view. Anterior angles finely pointed, rounded. Posterior angles small, hardly visible in dorsal view, visible in lateral view. Lateral border rounded stronger in anterior fifth and before reaching posterior setigerous puncture, slightly rounded at middle. Marginal channel broadened by row of moderately sized foveae. Posterior setigerous puncture situated in distinct fovea, removed from lateral channel by diameter of pore.

Reflexed margin fine in whole length, running from posterior angles to base as slightly sigmoid line. Anterior transverse line deep, broad, reaching anterior margin, not joining lateral margin, interrupted at middle. Median line deep, broad, complete, surpassing anterior transverse line without fusing. Surface smooth on disc, with minutely transverse reticulation at base, basal impression formed by longitudinal group of deep foveae, some short broad and flat rugae anterolaterally.

Elytron: Subcylindriform, slightly dilated in apical half, contracted to humerus. Humerus rounded, obtuseangular. Base concave at declivity, margined from humerus to peduncle, declivity perpendicular falling to pedunculus, setigerous tubercle at base of first stria. Scutellar stria absent. Striae punctuate-striate, 1 - 3 free at base, 4 - 7 joining in flattened depression at base reticulated isodiametrically, 2 - 6 not reaching tip of apex, ending on apical declivity at carina of interval 7, 3 and 4, and 5 and 6 joining more or less apically. Intervals convex, 8th distinctly carinate at humerus and apical third, 7th with short carina at apex. Marginal channel with uninterrupted series of small setigerous punctures at reflexed margin, another series of large setigerous punctures situated mesially, with incomplete fold-like carina at apex. Third stria with 4 setigerous punctures. Base with isodiametric reticulation. Reflexed lateral margin finely crenulate, more distinct in basal half.

Ala: Fully developed.

Lower surface: Proepisternum covered with distinct isodiametric reticulation, some transverse wrinkles laterally, submarginal furrow complete. Epipleuron with distinct row of punctures. Abdomen laterally with distinct isodiametric reticulation, smooth at middle but with irregular situated punctures at all tergites, ventral strigae distinct, terminal segment with longitudinal rugae laterally, 2 apical setigerous punctures widely separated.

Legs: Profemora with conspicuous longitudinal rugae ventrally, protibia with distinct and complete carina and sulcus dorsally, lateral upper spine wide, ensiform, turned distinctly ventrally and laterally; movable spur shorter than spine, sharp, turned slightly ventrally, 3 praeapical lateral denticles wide, ensiform, setae at all denticles fractuate. First segment of protarsus nearly as long as segments 2 - 4 together, in apical half with few setae. Intermediate tibia with distinct spur apically, spur with fractuate seta; tibia at inner side with two setae and distinct longitudinal reticulation.

Male genitalia (Fig. 3): Median lobe slender, moderately arcuate at middle, distinctly arcuate apically. Endophallus strongly folded, with some teeth laterally. Both parameres slender, slightly arcuate, with 4 short setae at apex.

Female genitalia (Fig. 5): Moderately broadened at base, with 5 long nematiform setae at middle, 8 short nematiform and few filiform setae basally.

V a r i a t i o n : Some variation can be observed in the pattern of the carinae on the frons of head. In few specimens it is irregular whereas the carinae are forming an indistinct arrow head in most of the other specimens. On the labrum the central seta is indistinct in few paratypes.

D i s t r i b u t i o n : Known from the type locality in Laos, 250 km north of Vientiane.

Habits: According to a 2<sup>nd</sup> label information, the specimens were collected in „hilly country with sparse settled primary vegetation“.

R e l a t i o n s h i p s : On the first glance the species looks like to be related to *Clivina coryzoides* BAEHR from Australia (BAEHR 1989) but it is much more related to *Afroclivina mülleriana* KULT from Tanganyika in Africa. However, due to the different type of palpi, antennae, and the striae at base of the elytra it does not belong to the genus *Afroclivina*

**KULT.** *Clivina rugosofemoralis* most probably seems to be intermediate between *Afroclivina* and *Rugiluclivina* and may represent a member of a separate group among the genus *Clivina* not yet characterised especially.

**R e m a r k s :** The label information indicates that the species occurs sympatrically with *Rugiluclivina wrasei* BALKENOHL. and *R. leonina* nov. spec.

**E t y m o l o g y :** The name refers to the rugae on the ventral surface of the front femur.

***Rugiluclivina leonina* nov. spec. (Figs 2, 4, 6)**

**Type Material:** Holotype ♂, N Laos, 10 km N Luan Prabang, Mekong river, 240 km N Vientiane, IX 1992, leg. Insomsay Somsy (CWB); Paratype: 1 ♀, same data as holotype (CBA).

**D i a g n o s i s :** A small yellow brown species with densely packed longitudinal carinae on the frons of head and a slight but distinct clypeal transverse furrow. The labrum is bilobed, deeply excised, and 6-setose. At the pronotum, the median line and the anterior transverse line are joining, the reflexed lateral margin runs from the posterior angle to the base as stright line, and the base shows bilaterally a flat reticulated impression with a group of punctures longitudinally situated. The elytra are slightly dilated in the apical half, the 4 inner striae are free at base, the 3<sup>rd</sup> stria has 4 setigerous punctures, and striae 2 - 4 have tubercles at base.

**Description:** Measurements: Length 4.0 / 4.3 mm (including closed mandibles), width 1.1 / 1.18 mm, ratio length/width of pronotum 1.02, ratio length/width of elytra 2.0 / 2.03.

**Colour:** Dorsal and ventral surface shiny; yellow to middle brown; head and mandibles dark brown, other mouthparts, antennae, intermediate, and hind legs yellow brown, front legs dark brown.

**Head:** One fifth smaller than pronotum. Clypeus wide, rectangularly, with longitudinal and anteriorly converging carinae, margin straight anteriorly, projecting lateral teeth small, transversal furrow not deep but distinct; wings smooth, wider than teeth of clypeus, projecting anteriorly as teeth; clypeus, wings, supraantennal plates margined. Supraantennal plates vaulted, projecting broadly laterally but not beyond eyes, covered with longitudinal fine carinae, with obtuse rounded angle anteriorly; teeth, wings, supraantennal plates separated by distinct notches. Supraorbital furrows moderately deep and wide, diverging posterior transverse furrow and running to hind-gena level. Supraorbital carinae small. Frons globose, covered completely with 16 to 18 more or less longitudinal carinae. Neck with transverse rugae, constriction absent. Eyes of moderate size, convex, protruding. Genae indistinct. Antenna small, not reaching posterior seta of pronotum, segments 6 - 11 moniliform, somewhat flattened, seta on scapus situated dorsofrontally at apical tip, segment 2 attached excentrically to scapus, segment 3 sparsely pubescent in apical two thirds, fully pubescent from segment 4. Labrum wider than clypeus, bilobed, distinctly excised at middle, 6-setose, ciliate laterally, lobes amargined, with isodiametric to transverse reticulation. Mandible slender at apex, apical half and lateral margin bent dorsally, with fine longitudinal rugae in basal half. Two apical segments of maxillary palpus securiform; segment 2 of labial palpus bisetose, apical segment fusiform. Ligula wide, spatulate, 2 apical setae separated.

**Pronotum:** Subrectangular, slightly convex on disc (lateral view), conspicuously convex in frontal view. Anterior angles small, as far advanced as anterior margin. Posterior angles indistinct, hardly visible in dorsal view, visible in lateral view. Lateral border rounded at anterior angles and before posterior setigerous puncture, parallel at middle.

Posterior setigerous puncture situated in distinct fovea, removed from lateral channel by diameter of pore. Reflexed margin fine in whole length, running from posterior angles to base as straight line. Anterior transverse line deep, broad, complete, joining median line. Median line deep, complete, broad anteriorly, small basally. Surface smooth on disc, with isodiametric reticulation at base, basal impression near setigerous puncture flat, with longitudinal group of small and deep foveae, some short broad and flat rugae laterally and anteriorly.

Elytron: Cylindriciform, slightly dilated in apical half, contracted to humerus. Humerus rounded, obtuseangular. Base distinctly concave at declivity, margined from humerus to peduncle, declivity perpendicular falling to pedunculus, setigerous tubercle at base of first stria. Scutellar stria fine, distinct tubercle at base of each interval 2 - 4, striae punctuate-striate, 1 - 4 free at base, 5 and 6 joining in flattened depression at base reticulated isodiametrically, 2 - 7 not reaching tip of apex, ending on apical declivity at carina of interval 7. Intervals convex, 7<sup>th</sup> and 8<sup>th</sup> distinctly carinate at humerus and in apical quarter. Marginal channel with uninterrupted series of setigerous punctures considerably wider situated at middle. Third stria with 4 setigerous punctures. Interval 7 in basal half and 8 completely with isodiametric reticulation. Reflexed lateral margin finely crenulate in basal half.

Ala: Fully developed.

Lower surface: Proepisternum with distinct isodiametric reticulation, some transverse wrinkles laterally, submarginal furrow complete. Epipleuron with distinct row of punctures. Abdomen laterally with distinct isodiametric reticulation, tergites at middle with irregular small foveae, ventral strigae distinct, terminal segment with distinct punctures and rugae, 2 apical setigerous punctures widely separated.

Legs: Profemora with longitudinal rugae ventrally, wing-like tooth at apex elongated, not high, protibia with indistinct but complete sulcus dorsally, lateral upper spine wide, ensiform, turned distinctly ventrally and laterally; movable spur shorter than spine, explanate at apex, sharp, turned slightly ventrally, 3 praeapical lateral denticles wide, ensiform, obliquely truncated, setae at all denticles fractuate. First segment of protarsus as long as segments 2 - 4 together, with 3 rows of few setae each. Intermediate tibia with distinct spur apically, spur with seta, tibia not hirsute at inner side.

Male genitalia (Fig. 4): Median lobe slender, straight at middle, distinctly arcuate and twisted apically. Endophallus strongly folded, teeth not visible. Both parameres slender, slightly twisted, with 4 respectively 5 short nematiform setae at apex.

Female genitalia (Fig. 6): Moderately broadened at base, slender and shovel-like apically, with 4 nematiform setae at apex.

**D i s t r i b u t i o n :** Known from the type locality in Laos, 250 km north of Vientiane.

**Habits:** According to a 2<sup>nd</sup> label information, the specimens were collected in „hilly country with sparse settled primary vegetation“.

**R e l a t i o n s h i p s :** The species is surely related to *Rugilucivina wrasei* BALKENOHL but differs mainly in the following characters: smaller size, paler colour, less protruding eyes, not deepened transverse clypeal furrow, more flattened mandibles, presence of lateral basal impressions on the pronotum, the 8<sup>th</sup> interval which is not totally carinate, and the setigerous punctures in the marginal channel of the elytra which are considerably wider situated at middle.

**R e m a r k s :** According to the labels, the species seems to occur sympatrically with *Rugilucivina wrasei* BALK. and *Clivina rugosofemorialis* nov. spec..

It should be mentioned that the species shows in contrast to other members of the genus the regular 2 setae on the 2<sup>nd</sup> segment of the labial palpus. This character should be added to the description of the genus given in BALKENOHL (1996).

**E t y m o l o g y** : The name is derived from the yellow brown colour of the species.

### Acknowledgements

I thank David W. Wrase (Berlin) for making the material available for the study as well as for the gift of some paratypes. Thanks are also due to Dr. Arvid Lompe (Nienburg) for providing the specific medium for mounting of the genitalia.

### Zusammenfassung

Zwei neue Arten, *Clivina rugosofemoralis* nov. spec. und *Rugiluclivina leonina* nov. spec., beide aus Laos werden beschrieben und illustriert. Die Arten werden von den nächstverwandten Arten vergleichend unterschieden.

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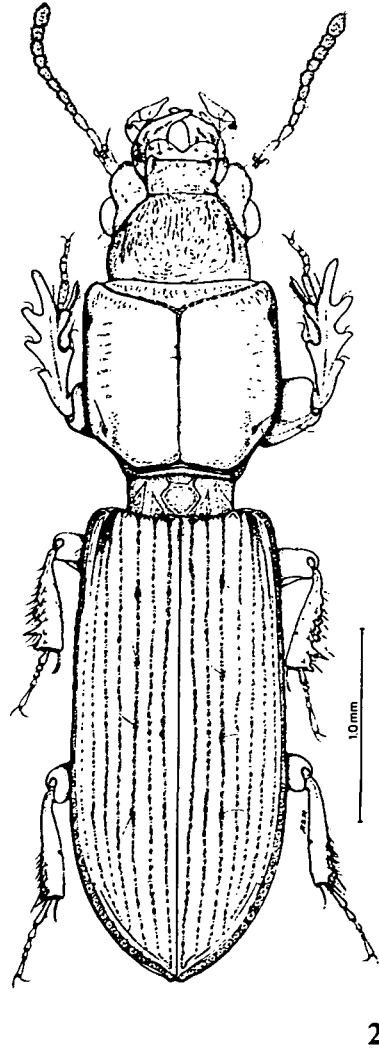
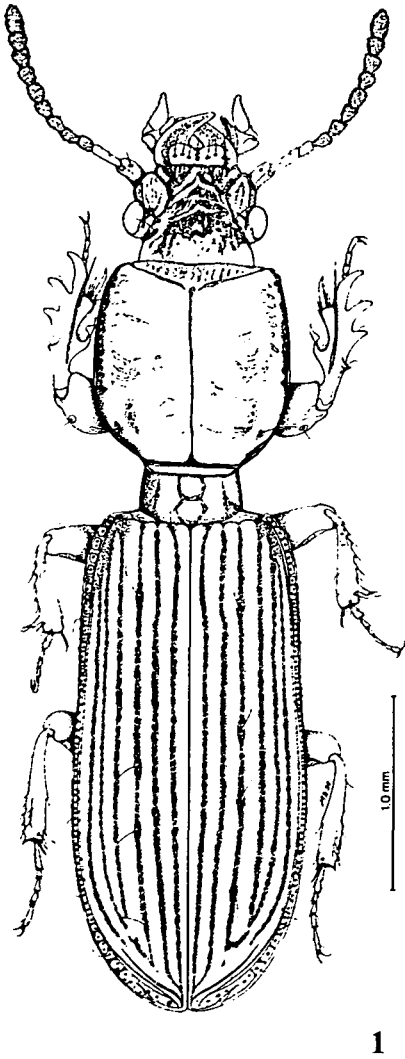


Fig. 1-2: 1 – *Clivina rugosofemoralis* nov. spec., habitus, dorsal view. 2 – *Rugiluvina leonina* nov. spec., habitus, dorsal view.

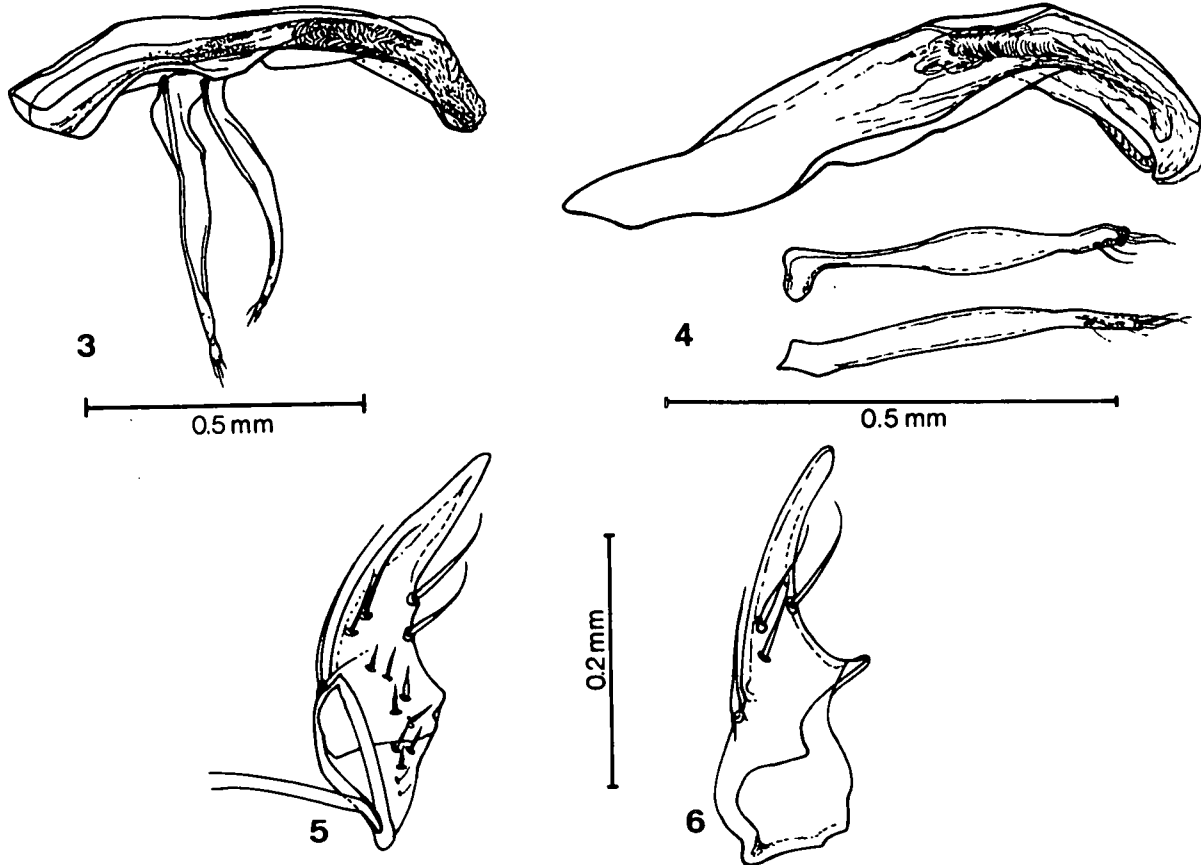


Fig. 3-6: 3 – *Clivina rugosofemoralis* nov. spec., ♂ genitalia: aedeagus with parameres, dorsal view. 4 – *Rugiluvivina leonina* nov. spec., ♂ genitalia: aedeagus with parameres, dorsal view. 5 – *Clivina rugosofemoralis* nov. spec., ♀ genitalia: stylomere. 6 – *Rugiluvivina leonina* nov. spec., ♀ genitalia: stylomere.