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Revision of *Monoleptocrania* Laboissière, 1940

(Coleoptera: Chrysomelidae: Galerucinae)

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Abstract: Material of *Monoleptocrania* Laboissière, 1940 is revised. This genus comprises only one species, originally described as *Galeruca foveata* Olivier, 1807 from northern Namibia. *Galleruca cavifrons* Thomson, 1858 (**syn. nov.**) described from Gabun, could be found as synonym. *Monoleptocrania* was erected for *Monolepta* Chevrolat, 1837 related Galerucinae having a depression or cavity on the vertex. Other external characters, and, for the first time, genitalic characters are given. *Monoleptocrania* is phylogenetically most closely related to *Afrocrania* Hincks, 1949.

Zusammenfassung: Verfügbares Material von *Monoleptocrania* Laboissière, 1940 wird revidiert. Die Gattung umfasst nur eine Art, die ursprünglich als *Galeruca foveata* Olivier, 1807 aus dem nördlichen Namibia beschrieben wurde. *Galleruca cavifrons* Thomson, 1858 (**syn. nov.**), aus Gabun beschrieben, konnte als Synonym gefunden werden. *Monoleptocrania* wurde für Galerucinen mit langem Basi-Metatarsus und ohne deutliche Eindrücke auf dem Pronotum aus der Verwandschaft um *Monolepta* Chevrolat, 1837 aufgestellt, die auf dem Scheitel eine Eindellung besitzen. Andere ektoskelettale und zum ersten mal auch genitalmorphologische Merkmale werden dargestellt. *Afrocrania* Hincks, 1949 ist die phylogenetisch nächst verwandte Gruppe zu *Monoleptocrania*.

Key words: Coleoptera, Chrysomelidae, Galerucinae, *Monolepta, Afrocrania, Candezea,* Africa, Afrotropical Region, taxonomy.

* 5. Contribution to the taxonomy and phylogeny of Afrotropical Galerucinae.

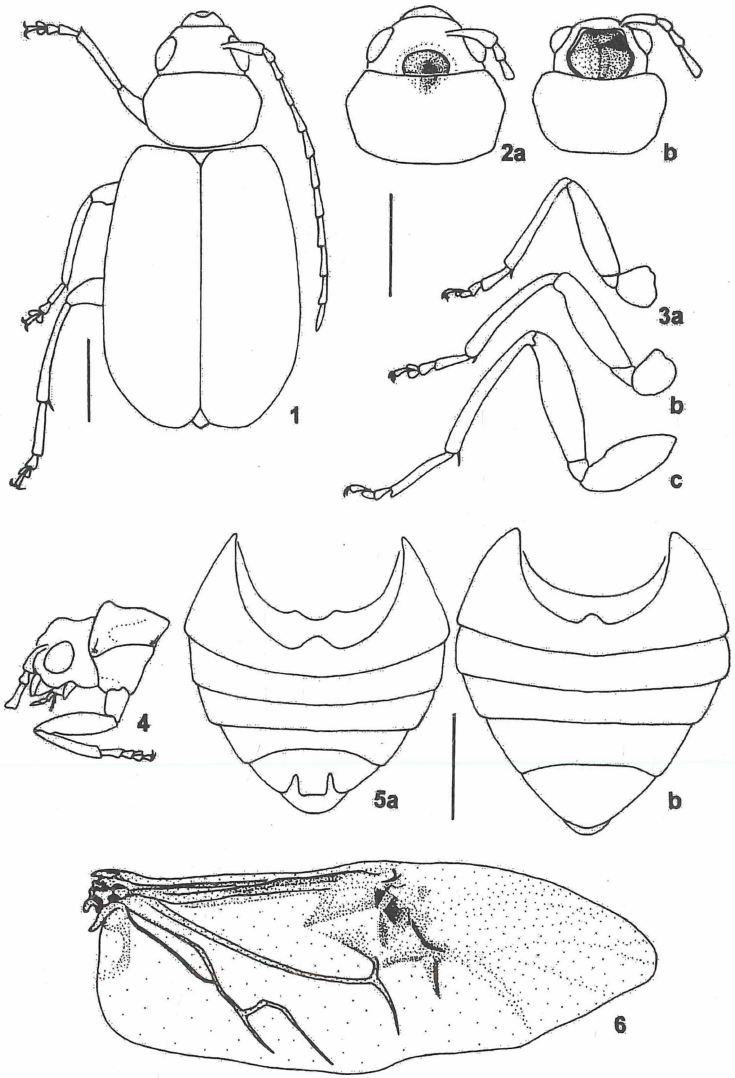

Fig. 1 – 6: *Monoleptocrania foveata* (Olivier, 1807): 1: Habitus; 2: Head and pronotum, dorsal view showing the head cavity; a: female; b: male; 3: Legs; a: prothoracic, b: mesothoracic, c: metathoracic; 4: Head and prothorax, male, lateral view; 5: Abdomen, ventral view; a: male; b: female; 6: Hindwing. Scale bar: each 1 mm.

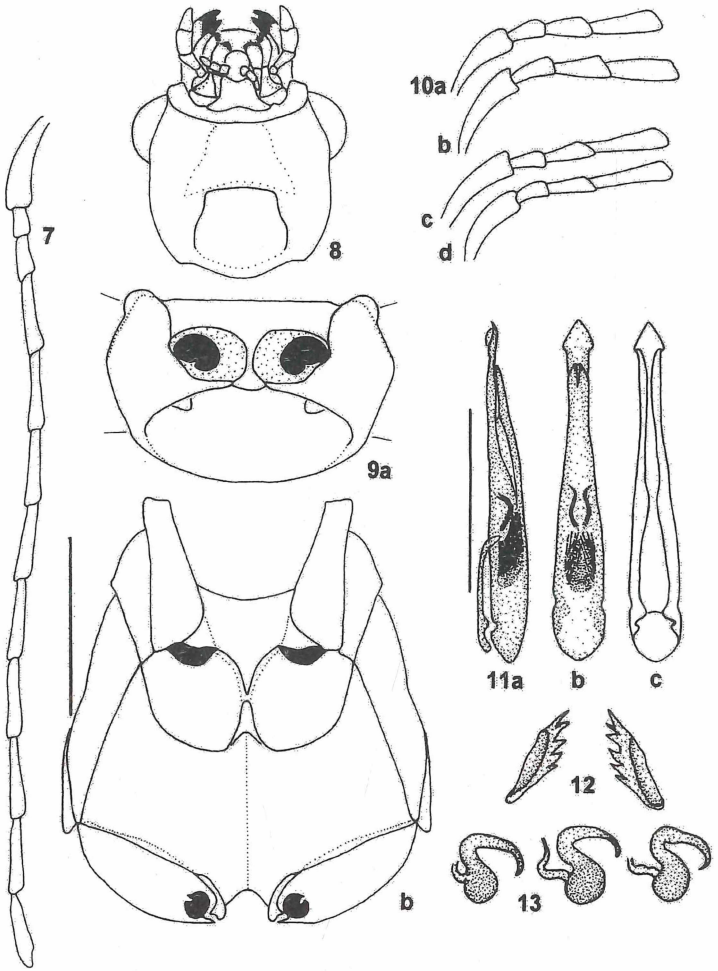

Fig. 7 – 13: *Monoleptocrania foveata* (OLIVIER, 1807): 7: Antenna; 8: Head, ventral view; 9: Thorax, ventral viev; a: prothorax, coxal cavities shaded, coxal openings black; b: meso– and metathorax, coxal openings black; 10: Basal antennal articles; male: a, b; female: c, d; 11: Median lobe; a: lateral, b: dorsal, c: ventral, without endophallic structures; 12: Bursa-sclerites; 13: Three different spermathecae.
Scale bar: each 1 mm.

Introduction

Galerucinae with slender legs, basi-metatarsus much longer than the remaining four metatarsal articles, and without significant pronotal depressions are assigned to the "Sectio Monoleptites" sensu WILCOX (1973). The classification and the taxonomic status of the whole group is very unsatisfactory, and a revision of the Afrotropical species was started recently (cf. WAGNER 1999). Studies on the species rich taxa *Monolepta* Chevrolat, 1837, *Afrocrania* Hincks, 1949 and *Candezea* Chapuis, 1879 reveal that there are several species which need to be transferred to other taxa according to their phylogenetical position.

One of these taxa has been already described by Victor LABOISSIÈRE in 1940, when he transferred *Galeruca foveata* Oliver, 1807 which was listed in *Monolepta* by WEISE (1924) to his new genus *Monoleptocrania*. *Monoleptocrania foveata* can be clearly distinguished from all other Galerucinae with long basi-metatarsus by an impression on the vertex, which is shallow and approximately circular in females, but deep and pentagonal in males. This was noticed by OLIVIER (1807) and later also by THOMSON (1858) when both authors named the species after this conspicuous character (*Galeruca foveata*, *Galleruca cavifrons* THOMSON, 1858). THOMSONs choice is not very favourable since it is not the frons (like in males of some *Afrocrania*-species; cf. WEISE 1892, MIDDELHAUVE & WAGNER submitted), but the vertex which bears the cavity. The type of *Galeruca foveata* is not available. However, the description of OLIVIER (1807) which also includes a coloured figure, allows an assignment to this species. When LABOISSIÈRE (1940) erected *Monoleptocrania* he gave a detailed description of this monotypic genus including a figure of the habitus. Within our revision of the Afrotropical "Monoleptites" no further species of this genus could be found. The detailed examination of external and especially the genitalic characters emphasizes the generic delimitation.

Material and methods

A set of figures including external and genitalic characters is given. Morphometric measurements were carried out for external characters; each eight males and females were measured. Absolute measurements

are: Total length from clypeus to apex of elytron, length of elytron, width of both elytra, and width of pronotum. Relative measurements are: Length to width of pronotum, length of elytron to maximal width of both elytra, length of antennal articles 2 to 3, length of articles 3 to 4, and length of basi-metatarsus to length of metatibia.

About a total of 50,000 specimens of Afrotropical "Monoleptites", including material of all major collections were examined for our revision of this group, but specimens of *Monoleptocrania foveata* were found in few collections only: The Natural History Museum, London (BMNH; S. SHUTE, M. COX; n = 1); Institut Royal des Sciences Naturelle de Belgique, Brussels (IRSNB; M. CLUDTS; n = 52); Museo Civico di Storia Naturale, Genova (MCSG; R. POGGI; n = 2); Musée National d'Histoire Naturelle, Paris (MNHN; N. BERTI; n = 16); American National Museum for Natural History, Washington (NMNH; D. FURTH; n = 1). Some specimens out of a large series from IRSNB were given to other collections. We thank all colleagues who made material available to us.

Redescription of *Monoleptocrania* Laboissière, 1940

Type species by monotypy:
Monoleptocrania foveata (Olivier, 1807)
= Galeruca foveata Olivier, 1807
= *Galleruca (Calomicrus) foveata* Olivier, 1807: RITSEMA (1875)
= *Monolepta (Monolepta) foveata* (Olivier, 1807): WEISE (1924)
= *Galleruca cavifrons* Thomson, 1858 **syn. nov.**
= *Monolepta cavifrons* (Thomson, 1858): WEISE (1895), WEISE (1924), WILCOX (1973)

Type material:
Galleruca cavifrons Thomson, 1858
Lectotype: ♂, "Gabun; *M. cavifrons*, Thoms." (IRSNB); this designation.

OLIVIER (1807; not 1808, cf. WEISE 1924, WILCOX 1973) described *Galeruca foveata* after a specimens from the collection of A. PALISOT DE BEAUVOIS which was collected "dans le Oware" what probably refers to a river in northern Namibia. Chrysomelidae of this collection were distributed via A. CHEVROLAT to several musea (cf. HORN et al. 1990). A type specimen is not available. Since there is no doubt on the species identity,

a designation of a neotype (cf. Article 75.2. ICZN 1999) is not necessary. Furthermore, material of J. THOMSON was sold by different beetles families, and Coleoptera of the "Voyage Gabon" were given to IRSNB. A large series from this voyage could be found in the collection in Brussels. Therefore, it was possible to designate a lectotype of *Galleruca cavifrons*.

Further material examined:
Cameroon: 1 ex., Victoria (4.01N/8.12E), VI.-VII.1902, L. FEA (MCSG).
Gabun: 46 ex., 3 ex. with additional label "*Monolepta cavifrons* THOMS." (40 ex. IRSNB; 2 ex. transferred to MNHU, Berlin; 6 ex. to ZFMK, Bonn); 1 ex., *Monolepta cavifrons*, THOMSON, V. LABOISSIÈRE det. (NMNH); 1 ex., JACOBY coll. (BMNH); 1 ex., coll. générale (MNHN); 1 ex., Congo Francese, Cap Lopez (0.36S/8.35E), X.1902, L. FEA (MCSG).
Ivory Coast: 15 ex., Bassam, 1909, coll. A. BONHOURE (MNHN).
Sierra Leone: 3 ex., Shutes de Samlia, Riv. N. Gamie, MOCQUEREYS (IRSNB).

Total length: males: 4.05 – 5.60 mm (mean: 4.78 mm); females: 4.50 – 5.20 mm (mean: 4.83 mm).
Coloration: Entirely pale reddish yellow including antennae and legs.
Head: Eyes convex and ovate (Fig. 1). Vertex in females with shallow, approximately circular impression (Fig. 2a), in males with deep, pentagonal cavity having protruding margins (Fig. 2b). Base of the head in males can only slightly be inserted under the anterior margin of the pronotum according to this structure. Antennae slightly longer than elytra (Fig. 1). First antennal article especially in males broad, enlarged towards apex. Length of antennal article 2 to 3 in males: 0.69 – 0.83 (mean: 0.77), in females: 0.62 – 0.75 (mean: 0.70); length of antennal article 3 to 4 in males: 0.52 – 0.67 (mean: 0.58; Figs 10a, b), in females: 0.58 – 0.70 (mean: 0.63; Figs 10c, d).
Thorax: Pronotum narrowed at base, the basal width significantly smaller than the width of elytra at humeri (Figs 1, 9a); at the anterior angles slightly convex, having shallow depressions behind (Fig. 4). Pronotal width in males: 1.20 – 1.60 mm (mean: 1.48 mm), in females: 1.40-1.65 mm (mean: 1.53 mm); pronotal length to pronotal width in males: 0.57 – 0.62 (mean: 0.58), in females: 0.56 – 0.68 (mean: 0.61). Prothorax with closed coxal cavities behind (Fig. 9a). Elytra elongated, slightly enlarged toward apex. Scutellum triangular. Elytral length in males: 3.10 – 4.00 mm (mean: 3.54 mm), in females: 3.55 – 4.05 mm (mean: 3.78 mm), maximum width of both elytra in males: 2.40 – 3.00 mm (mean: 2.73 mm), in females: 2.70 – 3.10 mm (mean: 2.91 mm). Length of elytron to

maximal width of both elytra in males: 0.74 – 0.86 (mean: 0.77), in females: 0.72 – 0.82 (mean: 0.77). Length of basi-metatarsus to length of metatibia in males: 0.41 – 0.46 (mean: 0.44), in females: 0.41 – 0.49 (mean: 0.44; Fig. 3c). Alae well developed (Fig. 6).
Abdomen: Five sternites (ventrites) visible, last ventrite in males with two deep incisions (Fig. 5).
Male genitalia: Median lobe symmetrically, straight, slender. In dorsal/ventral view slightly conical from the base towards the last apical third, arrow-like enlarged at apex (Figs 11b, c). Tectum slender, with incision at apex (Fig. 11b), reaching nearly towards the apex of the median lobe. Tegmum Y-shaped and attached in basal third of the median lobe. Parameres absent. Orifice nearly circular. Endophallus with one pair of slender hooked and twisted spiculae (Fig. 11a, b).
Female genitalia: Spermatheca with strongly widened nodulus and short, broad middle part (Fig. 13). Cornu strongly curved at apex. Bursa-sclerites larger than spermathecae, strongly sclerotised, having 5-6 strong spines (Fig. 12).

Diagnosis: *Monoleptocrania* is characterized by the conspicuous impression on the vertex (behind the antennal insertion) which is not found in any other related Galerucinae. This character shows sexual dimorphism, since the depression is much deeper and larger in males than in females. Head depression are also known from some *Afrocrania*, but in this group, head cavities are located at the frons (in front of the antennal insertion) and occurs in males only. However, *Afrocrania* is probably phylogenetically most closely related to *Monoleptocrania,* but *Afrocrania* species are usually larger (mean total length of different species range between 4.07 – 6.75 mm), the pronotum is narrower (pronotal length to pronotal width: 0.59 – 0.67), and the elytra are much more elongated (width of both elytra to elytral length: 0.57 – 0.66). Coloration of the dorsum of *Afrocrania* is similar to *Monoleptocrania*, usually yellowish or brownish red, but the antennae, the underside of the thorax, and the abdomen are usually black. Prothoracic coxal cavities in *Afrocrania* are open behind, while they are closed in *Monoleptocrania.* Also the genitalic characters reveal a close relationship between both taxa: The median lobe in *Afrocrania* is also slender, but the apical part is more elongated, the tectum is much shorter, and the endophallus has two or three pairs of spiculae. In females, bursa sclerites are very similar, but the spermatheca of *Afrocrania* is much slenderer, and the spermathecal duct is inserted in a different position to the nodulus. Furthermore, external and genitalic

characters of *Monolepta* and *Candezea* are more different in comparison to *Monoleptocrania* and *Afrocrania* (cf. WAGNER 1999). *Candezea* species are much larger, the elytra are broader, the shape of the median lobe is different and the endophallus bears three pairs of strong spiculae. *Monolepta* have also broader elytra, the dorsum usually shows species-specific coloration, often having yellow spots or black bands on the elytra, antennal article 2 and 3 are approximately of same size, and the genitalic characters of males and females are very different (cf. WAGNER 1999).

Distribution: Known only from few locations in the coastal region of West and Central Africa from Sierra Leone to northern Namibia. Most specimens found in Gabun, all specimens collected before 1910.

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