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Revision of Afrotropical *Monolepta* Chevrolat, 1837 (Coleoptera: Chrysomelidae, Galerucinae) Part II: Species with red elytra, pronotum and head, with descriptions of new species*

Thomas Wagner

Abstract. Material of Afrotropical *Monolepta* Chevrolat, 1837 with entirely red dorsum is revised. The coloration is yellowish red, carmine red, or, in some species, elytra are entirely reddish brown or at least the elytral disc is reddish brown while the elytral margins are paler red. Material of *Monolepta marginella* Weise, 1903, *Monolepta miltinoptera* Weise, 1909, *Monolepta castaneipennis* Laboissière, 1940a, and *Monolepta flavipes* Laboissière, 1939, species wich are mainly distributed in Eastern Africa, is revised. Three new species are described: *Monolepta sonsoensis* sp. n. from Uganda and Eastern Congo, *Monolepta ivorensis* sp. n. from Ivory Coast and Ghana, and *Monolepta clasnaumanni* sp. n. from Uganda and Kivu. A distribution map and an identification key for these seven species are given.

Key words. Afrotropis, Coleoptera, taxonomy, new species, redescription, biogeography.

Introduction

A revision of the Afrotropical "Monoleptites" sensu Wilcox (1973) was started recently (Wagner 1999). Since there were too many species to deal with in one publication, species were assigned to groups on base of their coloration, and results were presented in a series of papers (Wagner 2000a, b, in press). The assignment to colour pattern usually does not reflect the phylogenetic relationship of the species.

Herein, material of Afrotropical *Monolepta,* which have red elytra, prothorax, head and abdomen in common, is revised. The coloration of the dorsum is yellowish red, carmine red, or brownish red. One species has the head reddish brown, others have reddish brown elytra, or only the disc of elytra is reddish brown and the elytral margins are paler red. Legs and antennae are usually yellow, in one species antennal articles four to eleven are brownish, in some specimens of other species, the last antennal articles are brown or black.

Since several other Galerucinae species possess an entirely red coloration, it is necessary to clarify the assignment to *Monolepta*. Species belonging to this genus are characterized by having:

* 7th contribution to the taxonomy and phylogeny of Afrotropical Galerucinae.

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– antennal articles 2 and 3 of approximately same length (usually less than 20% difference in length of both articles; occasionally length more different, see *M. clasnaumanni* sp. n.);
– pronotum rectangular, transverse (ratio length to width: 0.53–0.70), lacking depressions;
– median lobe elongated, or dorsoventrally slightly curved, bilateral-symmetric without any incisions at apex or at apex of tectum, and symmetrically arranged endophallic armatures, usually with three distinct types of spiculae;
– spermatheca of distinct shape (Figs 3, 9, 14 ff.), two pairs of well sclerotized bursa-sclerites, dorsal and ventral pair of different size and shape.

There were some other Afrotropical species of the Galerucinae with entirely red coloration which were originally described in or later transferred to *Monolepta.* Especially the examination of genitalic characters reveals that these species do not belong to *Monolepta* and need to be transferred to other taxa. These species are:
– *Galeruca foveata* Olivier, 1807 = *Monolepta foveata* (Olivier, 1807) = *Monoleptocrania foveata* (Olivier, 1807)
– *Monolepta apicicornis* Thomson, 1858
– *Galleruca cavifrons* Thomson, 1858 = *Monolepta cavifrons* (Thomson, 1858)
– *Luperodes rufus* Harold, 1877 (cf. Weise 1909, Wilcox 1973)
– *Monolepta mombonensis* Weise, 1903
– *Monolepta backiaeae* Laboissière, 1940b
– *Monolepta cava* Aslam, 1968 = *Monolepta excavata* Bryant, 1952

Material and methods

A standard set of figures is given for each species. These are illustrations of the coloration (dorsal view), including the right antenna, where black or dark brown coloration is indicated by black, yellow coloration by white, red coloration by dot-shading, and reddish brown or brown by black shading. The basal four antennal articles (if available) of two different males and females, dorsal and lateral view of median lobe including endophallic structures, and ventral view of median lobe without endophallic structures (for classification see Wagner 2000a), the spermathecae of three different females, and bursa-sclerites of one female are figured.

Morphometric measurements were carried out for external characters. 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. Number of specimens measured is given in the description under "total length".

The subsequent descriptions are based on labelled specimens from the following collections: The Natural History Museum, London (BMNH; S. Shute, M. Brendell, M. Cox); Institut Royal des Sciences Naturelle de Belgique, Brussels (IRSNB; M. Cludts); Musée National d'Histoire Naturelle, Paris (MNHN; N. Berti); Museum für Naturkunde der Humboldt Universität zu Berlin (MNHU; H. Wendt, M. Uhlig); Musée Royal d'Afrique Centrale, Tervuren (MRAC; M. De Meyer, E. De Coninck); National Collection of Insects, Pretoria (NCIP; B. Grobbelaar); National Museums of Kenya, Nairobi (NMK; M. Mungai, K. Maes); Transvaal Museum, Pretoria (TMSA, S. Gusemann); (Zoologisches Forschungsinstitut und Museum Alexander Koenig, Bonn (ZFMK); Zoological Museum University of Copenhagen (ZMUC; M. Hansen); Zoologisches Institut und Zoologisches Museum der Universität, Hamburg (ZMUH; R. Abraham).

The name "Congo" is used throughout the manuscript for the "Democratic Republic of Congo".

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Descriptions

Monolepta marginella Weise, 1903

Lectotypus: ♀ "Mombo, 7.99" (MNHU); Tanzania (4.54S/38.18E). This designation.

Paralectotypus: 1♀, same data (MNHU). This designation.
A holotype was indicated neither in the original publication nor on the labelled material.

Other material revised: **Kenya:** 1, Taveta, 3.23S/37.40E, 1904, Ch. Alluaud (IRSNB). – **Mocambique:** 1, Delagoabai, 25.59S/32.25E (MNHU); 1, Porto Amelia, 13.00S/40.30E, on Cashew tree, IV.1968 (BMNH). – **South Africa:** 4, Zululand, Lake St. Lucia, 28.22S/32.25E, XII.1975, at black ligth, S. Endrödy-Younga (4 TMSA, 1 ZFMK); 2, Natal, Cape Vidal, 28.10S/32.32E, I.1981, R. G. Oberprieler (NCIP); 1, Lake Sibaya E shore, 27.22S/32.43E, I.1981, R. G. Oberprieler (NCIP); 1, Cape Vidal, XI.1986, D. D.'Hotman & A. Nel (NCIP); 1, Transvaal, Duiwelskloof, 23.42S/30.06E, I.1987, V. M. Uys (NCIP); 1, Lapalala N. Res., 23.51S/28.17E, I.1987, B. Grobbelaar (NCIP); 4, Transvaal, Nelspruit Nat. Res., 25.29S/30.55E. XII.1988, "beating", S. Endrödy-Younga (4 TMSA, 1 ZFMK); 10, Natal, Itala Game Res., 27.50S/31.33E, I.1994, XI.-XII.1995, F. Koch/U. Göllner/M. Uhlig (7 MNHU, 3 ZFMK); 1, Natal, Sodwana Bay NP, 27.60S/32.80E, F. Koch (MNHU); 8, Transvaal, Blyderivierspoort Nat. Res., 24.66S/30.80E, XII.1995, F. Koch (6 MNHU, 2 ZFMK); 1, Kwazulu-Natal, St. Lucia Park, Cape Vidal, 28.13S/32.55E, F. Koch (MNHU). – **Tanzania:** 1, Zanzibar, 6.10S/39.12E, Raffray (MNHN); 1, Zanzibar, Mhonda Ouzigoua, 6.07S/37.36E, A. Hacquard Mis. Ap. 1979 (MNHN); 1, Zanzibar, Chwaka, 6.10S/39.26E, 1951, N. L. H. Kraus (BMNH); 1, Lushoto, 4.42S/38.29E, 1650–1730 m, VII.1995, uv-light trap (ZMUC); 23, Tanga, Muheza distr., Kwamgumi For. Res.,170–220 m, 4.90S/3865E, VII.1995, uv-light (2 BMNH, 2 IRSNB, 2 MNHN, 2 MNHU, 2 MRAC, 4 ZFMK, 9 ZMUC); 24, Iringa, Mufindi Distr., Uzunga Scarp For. Res., 750 m, 8.50S/35.70E, III.1996, canopy fogging, McKamey et al. (10 ZFMK, 14 ZMUC).

Diagnosis: *Monolepta marginella* is on average the smallest species of this group. However, some large specimens can be of same length as *M. sonsoensis* sp. n. (see below). Both species are characterized by reddish brown colour on the elytral disc and broad red elytral margins, but elytral disc in *M. marginella* often very dark brown or even black (Fig. 1b), while *M. sonsoensis* sp. n. without black elytral disc. In *M. marginella* antennal articles 2 and 3 are on average longer and slenderer, and usually the last two articles are entirely black. The most significant external character to distinguish both species is colour and size of the antennal setae (see below). Other species similar to *M. marginella* see also under *M. sonsoensis* sp. n.

Redescription:

Total length: 3.00–4.40 mm (mean: 3.77 mm; n = 10).

Head: Red, clypeus yellowish red or red, labrum yellow or red (Fig. 1). Antennae yellow to reddish yellow, in specimens from Tanzania usually last two articles black, article 9 black towards apex (Fig. 1a), in specimens from South Africa usually last three antennal articles black (Fig. 1b). Antennae long, articles 4 to 10 elongated, 2.5 to 3 x longer than wide at distal end. In females antennal article 2 usually shorter than 3, in males roughly of same length. Length of antennal articles 2 to 3: 0.87–0.95 (mean: 0.91), length of articles 3 to 4: 0.47–0.54 (mean: 0.51; Fig. 2). Articles 4 to 11 with very fine, yellow setae (Fig. 2a).

Thorax: Prothorax red. Pronotal width: 0.95–1.40 mm (mean: 1.16 mm), ratio length to width: 0.58–0.61 (mean: 0.60). Elytral length: 2.60–3.45 mm (mean: 2.90 mm), and width of both elytra: 1.50–2.90 mm (mean: 2.07 mm), ratio length of elytron to maximal width of both elytra: 0.68–0.73 (mean: 0.71). Disc of elytra dark reddish brown or black, lateral and apical margin, including epipleurae red (Fig. 1). Scutellum red. Meso- and metathorax red or pale brownish-red. Legs yellow to pale brownish-yellow.

Abdomen: Red to pale brownish-red.

Female genitalia: Nodulus of spermatheca small, middle part and cornu long, slender (Fig. 3), dorsal part of bursa-sclerites curved, slender, with enlarged, spiny base (Fig. 4a), ventral part elongated, with small spines at outer margin (Fig. 4b).

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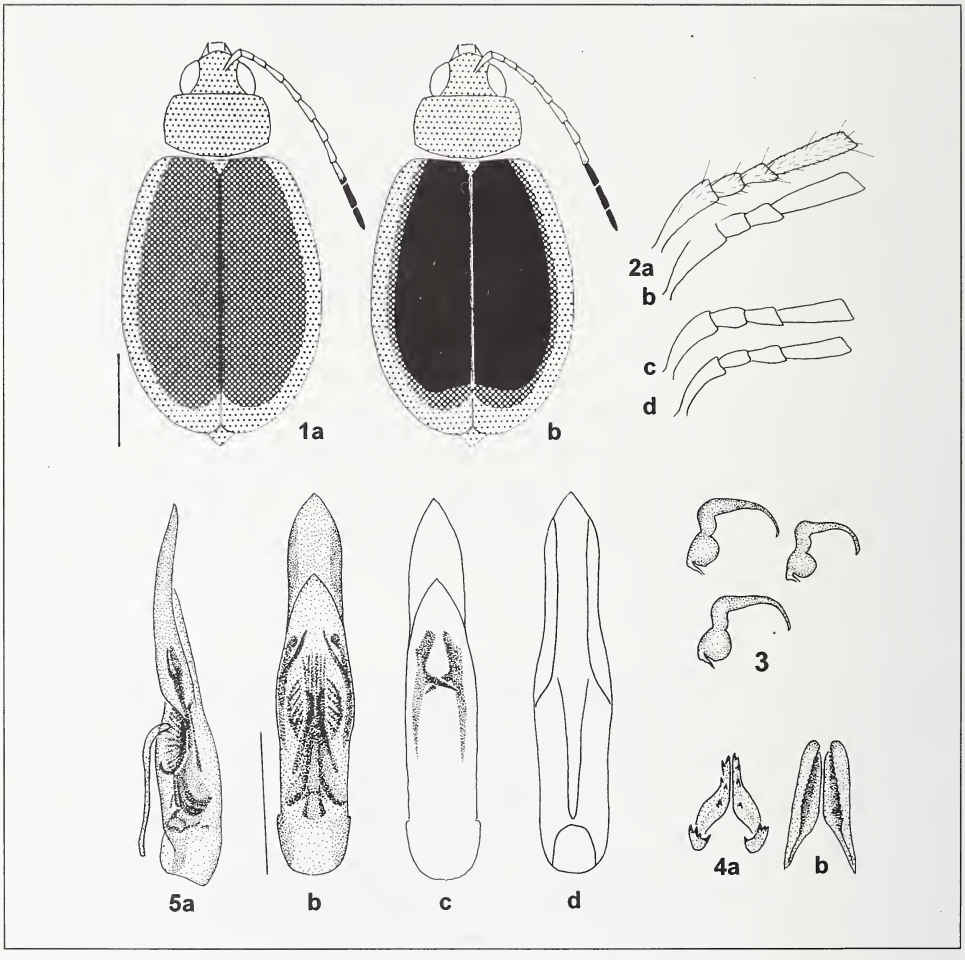
Male genitalia: Median lobe broad, parallel, slightly enlarged in the middle, apical part dorso-ventrally compressed, with ridge in the middle (Fig. 5); in specimens from South Africa and some from Tanzania median lobe slenderer (Fig. 5c). Tectum very broad, short, ventral groove as in Fig. 5d. Lateral spiculae very large, medially with long spiny appendix (Fig. 5b); this appendix shorter and transverse in specimens from South Africa and some from Tanzania (Fig. 5c). Six to eight slender median spiculae, two of them shorter, broader and apically with short hook; ventral spiculae large (Fig. 5b).

Distribution: Few specimens known from central Kenya, Zanzibar, continental Tanzania southwards to Mocambique and eastern Natal (Fig. 6).



Figs 1–5. *Monolepta marginella* Weise, 1903. – 1a, b: colour pattern; 2: basal antennal articles (a, b: ♂, a showing the fine setae; c, d: ♀); 3: three different spermathecae; 4: bursa-sclerites (a: dorsal, b: ventral); 5: median lobe: lateral (a); dorsal (b); dorsal, showing different type of lateral spiculae (c); ventral, without endophallic structures (d). Scale for colour pattern different from same scales for basal antennal articles and genitalic characters: each 1 mm. Same for all following figures.

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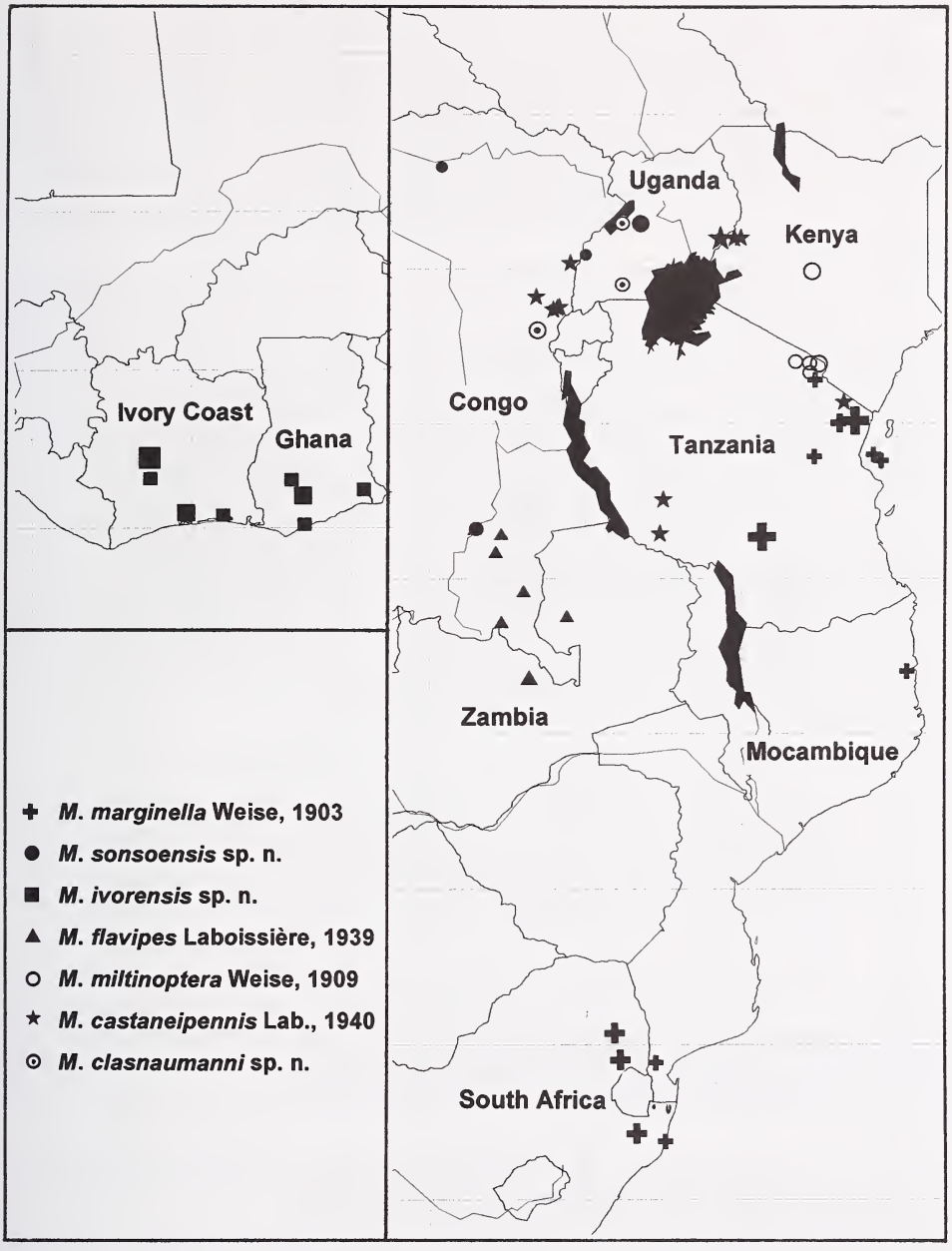

Fig. 6. Distribution of Afrotropical *Monolepta* species with entirely red coloration. Signatures of different size: classes for 1, 2–4, 5–9 specimens per location.

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Monolepta sonsoensis sp. n.

Holotype: ♂ "Uganda, Distr. Masindi, Budongo Forest nr. Sonso, 1°45'N/31°35'E, Th. Wagner leg. VII.95" (ZFMK).

Paratypes: **Congo:** 2, Parc Nat. Upemba, Georges de la Pelenge, 8.40S/26.50E, 1150 m, VI.1947, Miss. G. F. de Witte (IRSNB); 1, Bambesa, 3.28N/25.43E, X.1937, Vrydagh (MRAC). – **Uganda:** 1, Buamba Forest, Semliki Valley, 0.43N/30.04E, 800 m, XI.1911, S. A. Neave (BMNH); 2, same labels as holotype with additional labels: T.r.11, R.a.2 (ZFMK).

Derivatio nominis: Named after Sonso River, Budongo Forest, Uganda, where several specimens were collected.

Diagnosis: Coloration of *Monolepta sonsoensis* sp. n. is most similar to *M. marginella*, but the latter is much smaller, fourth antennal article is on average only 2 x longer than third in *M. marginella*, but in *M. sonsoensis* sp. n. significantely longer than 2 x. An easily recognizable character to distinguish both species are the antennal setae, which are yellow and fine in *M. marginella* (Fig. 2a), but longer bristly, and brown to black in *M. sonsoensis* sp. n. (Fig. 8a). Furthermore, outline and endophallic armature of the median lobe of both species are very different, while female genitalic characters are very similar. Both species have an enlarged spiny base of the dorsal part of bursa-sclerites, a very rare character in *Monolepta*. *M. sonsoensis* sp. n. can easily be distinguished by coloration from similar syntopic species: *M. alluaudi* Laboissière, 1920 has an entirely yellow head and prothorax; *M. jeanneli* Laboissière, 1920, *M. panicea* Bryant, 1948, *M. constantini* Wagner, 2000a, *M. clarae* Wagner, 2000a, *M. mpangae* Wagner, 2000a, and *M. garambaensis* Wagner, 2000a have red and black coloration on head, pronotum and elytra. Other entirely red *Monolepta* species are: *M. ivorensis* sp. n. which is of same size as *M. sonsoensis* sp. n., but has entirely reddish brown elytra, and is distributed only in West Africa; *M. flavipes*, of same size, but with entirely yellowish red coloration, much shorter basal antennal articles; *M. castaneipennis*, *M. miltinoptera*, and *M. clasnaumanni* sp. n. are much larger.

Description:

Total length: 4.10–4.50 mm (mean: 4.32 mm; n = 4).

Head: Red, clypeus reddish yellow, labrum brownish yellow (Fig. 7). Antennae entirely yellow to reddish yellow, or articles 4 to 11 brown to black, or becoming increasingly brown from article 6 towards apex (as in Fig. 7). Antennae long, articles 4 to 10 elongated, 2.5 to 3 x longer than wide at distal end. Length of antennal articles 2 to 3: 0.92–1.00 (mean: 0.96), length of articles 3 to 4: 0.38–0.44 (mean: 0.40; Fig. 8). Articles 4 to 11 with bristly black setae (Fig. 8a).
Thorax: Prothorax red to yellowish red. Pronotal width 1.20–1.35 mm (mean: 1.29 mm), ratio length to width: 0.56–0.60 (mean: 0.57). Elytral length 2.80–3.50 mm (mean: 3.27 mm), width of both elytra: 2.20–2.50 mm (mean: 2.35 mm), ratio length of elytron to maximal width of both elytra: 0.70–0.74 (mean: 0.72). Disc of elytra reddish brown, broad lateral and apical margin, including epipleurae red (Fig. 7). Elytra coarsely punctured. Scutellum red. Mesothorax yellowish red, metathorax red. Legs yellowish red.

Abdomen: Red.

Female genitalia: Nodulus of spermatheca small, middle part; cornu long, slender (Fig. 9), dorsal part of bursa-sclerites straight, slender, with enlarged, spiny base (Fig. 10a), ventral part elongated, with few large spines at outer margin (Fig. 10b).

Male genitalia: Median lobe broad, strongly narrowed in the apical quarter, at narrowest point with a short ridge at the ventral side (Figs 11a, c). Tectum broad, ventral groove narrow, slightly conical to the orificium (Fig. 11c). Lateral spiculae large, very short, hammer-like (Fig. 11b), two long and apical slender median spiculae, ventral spiculae very large, comb-like with a single but very strong spur at apex (Fig. 11b).

Ecology: *M. sonsoensis* sp. n. was collected by insecticidal fogging from trees of *Rinorea beniensis* (Violaceae) and *Trichilia rubescens* (Meliaceae) in Budongo Forest, Uganda. Trees

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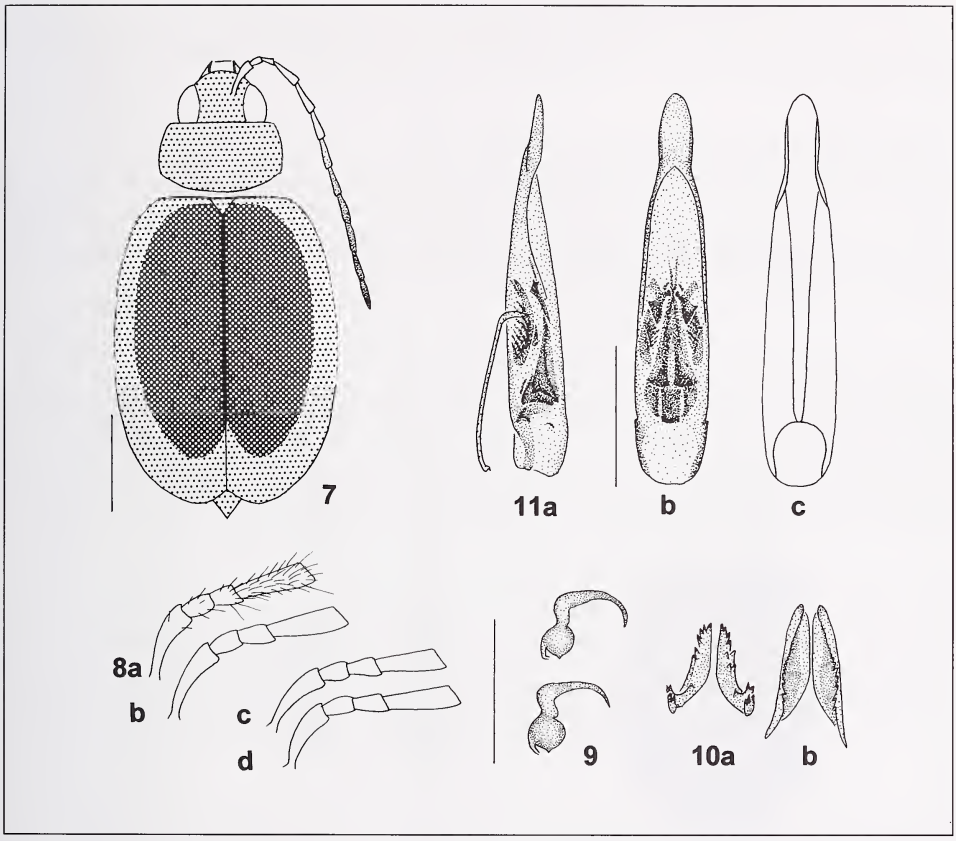
were of small stature, between 7 to 15 m in height. *M. sonsoensis* sp. n. has probably no food-plant relationship to these tree species.

Distribution: Recorded from forests along the Albertine Rift from Budongo Forest, Uganda, in the north to the Upemba National Park, Congo, in the south (Fig. 6).



Figs 7–11. *Monolepta sonsoensis* sp. n. – 7: colour pattern; 8: basal antennal articles (a: ♂, with bristly setae, b: ♂; c, d: ♀); 9: two different spermathecae; 10: bursa-sclerites (a: dorsal, b: ventral); 11: median lobe: lateral (a), dorsal (b), ventral, without endophallic structures (c).

Monolepta ivorensis sp. n.

Holotype: ♂ "Côte d'Ivorie, Mouyassu, 30 km, E. d'Aloisso, J. Decelle, VI.1961 / Récolté sur cacaoyer" (MRAC). 7.20N/16.30W.

Paratypes: **Ghana:** 1, Takoradi, 5.15N/1.45W, ex coll. Breuning (MRAC); 1, Addah, 6.20N/0.42E (MNHN); 1, Juabin, 6.50N/1.85W, Ashanti, 1916, A. E. Evans (BMNH). – **Ivory Coast:** 2, Amanikro, 6.00N/1.50W, I.–III.1960, E. Lavabre (MNHN); 8, same label as holotype (5 MRAC, 3 ZFMK); 1, Zepraghe-Koffikro, Daloa, 6.56N/6.28W, VI.1961, J. Decelle

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(MRAC); 3, Heremankono, au sud de Divo, 5.48N/5.15W, VIII.1961, J. Decelle (2 MRAC, 1 ZFMK); 1, Akoupe, 25 km N d'Abidjan, 5.40N/4.00W, X.1961, J. Decelle (MRAC); 2, Nguessankro, Bougouanou, X.1963, J. Decelle (MRAC).

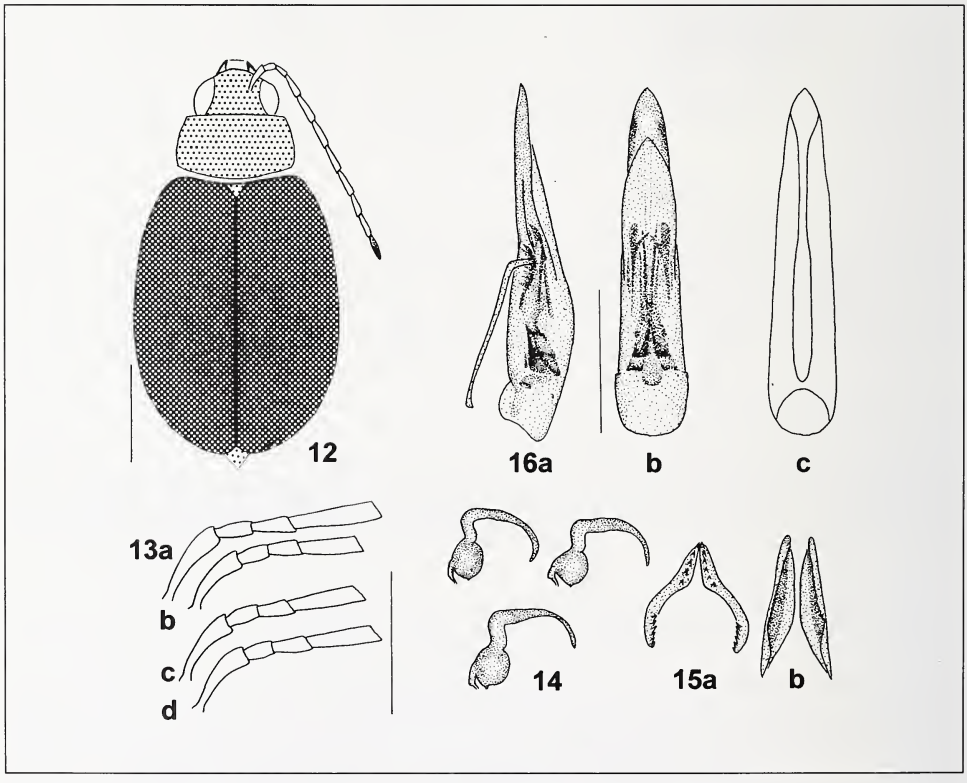
Derivatio nominis: Named after the country where it mainly occurs.

Diagnosis: *Monolepta ivorensis* sp. n. is characterized by usually entirely reddish brown elytra, and red head and pronotum. Other species from West Africa of the same size have paler red elytra, and a yellow head and pronotum like *M. conradi* Jacoby, 1899. *M. panicea* Bryant, 1948, a common *Monolepta* species of Western Africa, usually has black bands or spots on the elytra, is larger, and more coarsely punctured, and its elytra are much slenderer than in *M. ivorensis* n. sp.

Description:

Total length: 3.90–4.40 mm (mean: 4.17 mm; n = 8).

Head: Red, clypeus occasionally yellowish red, labrum yellow (Fig. 12). Antennae entirely yellow or last article brown or black towards apex. Antennae long, articles elongated, very slender, articles 4 to 10 more than 3 x longer than wide at distal end. Third article significantely longer than second, length of antennal articles 2 to 3: 0.84–0.90 (mean: 0.87), length of articles 3 to 4: 0.48–0.55 (mean: 0.51; Fig. 13).



Figs 12–16. *Monolepta ivorensis* sp. n. – 12: colour pattern; 13: basal antennal articles (a, b: ♂; c, d: ♀); 14: three different spermatheca; 15: bursa-sclerites (a: dorsal, b: ventral); 16: median lobe; lateral (a), dorsal (b), ventral, without endophallic structures (c).

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Thorax: Prothorax red. Pronotal width 1.10–1.35 mm (mean: 1.21 mm), strongly transverse, ratio length to width: 0.55–0.57 (mean: 0.56). Elytral length 2.90–3.40 mm (mean: 3.17 mm), width of both elytra: 2.05–2.40 mm (mean: 2.30 mm), ratio length of elytron to maximal width of both elytra: 0.69–0.75 (mean: 0.73). Elytra dark reddish brown, and usually only insignificantly paler red at lateral and apical margin (Fig. 12), occasionally the elytra have broader pale red margins and the coloration of the elytra is more like *M. marginella* (Fig. 1). Scutellum red. Meso- and metathorax red or yellowish red. Legs yellow to yellowish red.

Abdomen: Red to yellowish red.

Female genitalia: Nodulus of spermatheca of median size, middle part and especially cornu long, slender (Fig. 14). Dorsal part of bursa-sclerites long, very slender (Fig. 15a), ventral part slender, elongated, undulated at outer margin (Fig. 15b).

Male genitalia: Median lobe broad, slightly conical to apex (Fig. 16), tectum broad, ventral groove narrow, slightly enlarged in the basal half (Fig. 16c). Lateral spiculae large, distally enlarged, with single strong spine towards the middle, four long, slender median spiculae (Fig. 16b), ventral spiculae large, comb-like (Fig. 16a).

Distribution: Most specimens known from Ivory Coast, few from Ghana (Fig. 6).

Monolepta flavipes Laboissière, 1939

Holotype: ♀ "Elende, nov. / Angola, Miss. suisse 1932–1933" (ZMUH).

Other material revised: **Congo:** 1, Elisabethville, II.1911, 11.40S/27.28E, Miss. Agric. (MRAC); Parc Nat. Upemba: 2, Mukana Lusinga, 9.15S/27.12E, 1810 m, V.1945, III.1948, G. F. de Witte (IRSNB, ZFMK); 1, Lusinga, Kamalongiru, 8.56S/27.30E, VI.1945, G. F. de Witte (IRSNB); 1, Mubale-Munte, 8.40S/26.45E, 1480 m, V.1947, Miss. G. F. de Witte (IRSNB); 2 Kundelungu, 10.40S/28.00E, 1750 m, II.1950, N. Leleup (MRAC, ZFMK). – **Zambia:** 4, Lukanga Distr., Lukanga, 13.20S/28.20E, VII.1915, H. C. Dollman (3 BMNH, 1 ZFMK); 1, Lake Bangweulu, Kapola, N. of Kapata, 11.20S/29.40E, X.1946, M. Steele (BMNH).

Diagnosis: Small size, entirely yellowish red coloration, yellow antennae, yellow legs with partly brown femora are distinctive for *M. flavipes*. Most similar is *M. pimenteli* Laboissière, 1939 which is of equal size, but has the elytra and prothorax yellow or reddish yellow, a black head and also antennal articles 4 to 11 black. There are some other species of more yellow coloration described as *Monolepta*, but most of them need to be transferred to other genera. Also some entirely reddish-yellow to red coloured species, primarily described as *Monolepta*, and thus similar to *M. flavipes*, do not belong to this group (see below).

Redescription:

Total length: 3.70–4.50 mm (mean: 4.18 mm; n = 7).

Head: Yellowish red, clypeus and frons slightly paler, labrum yellow, antennae entirely pale yellow (Fig. 17). Antennae long, articles 4 to 10 elongated, about 3 x longer than wide at distal end. Length of antennal articles 2 to 3: 1.00–1.16 (mean: 1.04), length of articles 3 to 4: 0.30–0.40 (mean: 0.37), especially in males fourth article much more than 3 x longer than second article (Fig. 18).

Thorax: Prothorax yellowish red. Pronotal width 1.15–1.40 mm (mean: 1.26 mm), ratio length to width: 0.55–0.61 (mean: 0.58). Elytral length 2.80–3.40 mm (mean: 3.18 mm), width of both elytra: 2.00–2.40 mm (mean: 2.17 mm), ratio length of elytron to maximal width of both elytra: 0.66–0.71 (mean: 0.69). Elytra and scutellum entirely yellowish red (Fig. 17). Meso- and metathorax red, slightly darker than elytra. Legs yellow, proximal three quarters of femora a sharply contrasting yellowish brown to brown to the yellow distal part.

Abdomen: Yellowish red to brownish red.

Female genitalia: Nodulus of spermatheca small, middle part and cornu long, slender (Fig. 19), dorsal part of bursa-sclerites small, slender, with few spines (Fig. 20a), ventral part elongated, slender, with strong spines at outer margin (Fig. 20b).

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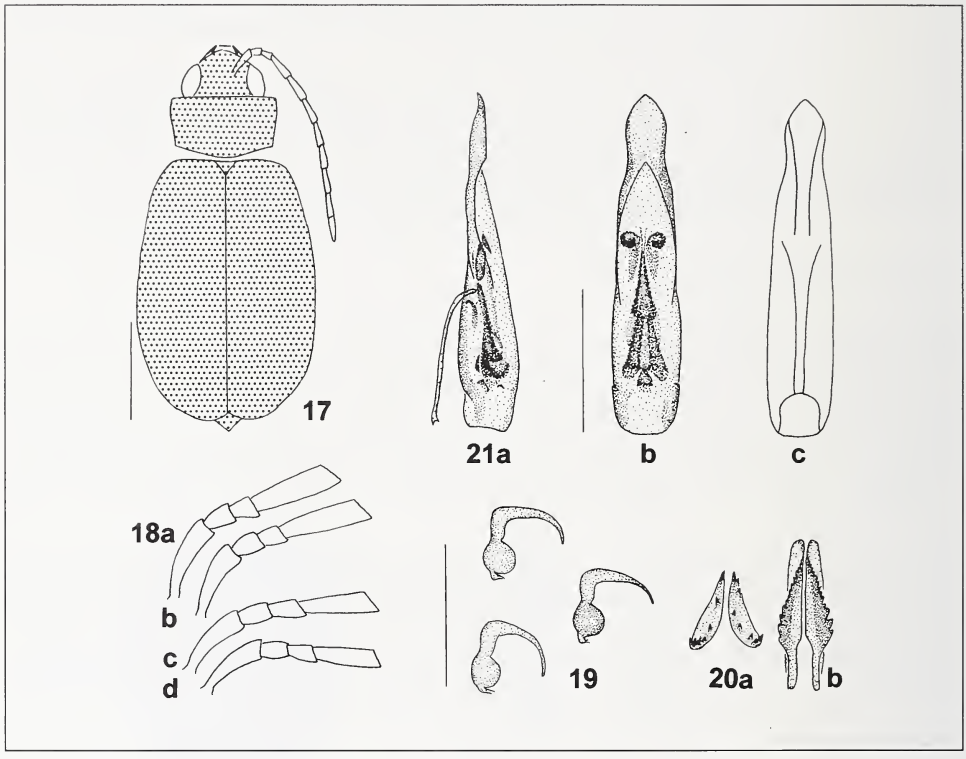
Male genitalia: Median lobe broad, narrowed in the apical fifth (Fig. 21). Tectum broad, ventral groove not homogeneous, basal half reaching towards outer margin of median lobe, forming a ridge (Figs 20a, c). Lateral spiculae large, short, apically with discoidal, twisted enlargement (Fig. 21b), two very slender median spiculae, ventral spines very small, hardly visible in dorsal view (Fig. 20b).

Distribution: Recorded from Angola, Zambia and southern Congo (Fig. 6).



Figs 17–21. *Monolepta flavipes* Laboissière, 1939. – 17: colour pattern; 18: basal antennal articles (a, b: ♂; c, d: ♀); 19: three different spermathecae; 20: bursa-sclerites (a: dorsal, b: ventral); 21: median lobe; lateral view (a), dorsal (b), ventral, without endophallic structures (c).

Monolepta miltinoptera Weise, 1909

Holotype: ♂ "Kilimandj., Kibonoto", ex. coll. J. Weise (MNHU). 3.05S/37.20E.

Other material examined: **Kenya:** 2, W. slopes of Mt. Kenya, 0.10S/37.30E, 2000–2600 m, II.1911, S. A. Neave (BMNH, ZFMK). – **Tanzania:** 1, Moschi, 3.20S/37.21E (MNHB); 1, Kilimandjaro, Marangu, 3.00S/37.00E, Zone de Forêts, 1800–2200 m, III.–IV.1912, Alluaud & Jeannel (IRSNB); 1, Kilimandjaro, 3.10S/37.30E, 2800 m, VIII.1954, E. Pinhey (NMK); 2, dto., ex coll. Breuning (MRAC, ZFMK).

Diagnosis: *M. miltinoptera* is most similar to *M. alluaudi*. This species is common in montane areas of Kenya and Tanzania and occurs sometimes syntopicly with *M. miltinoptera*.

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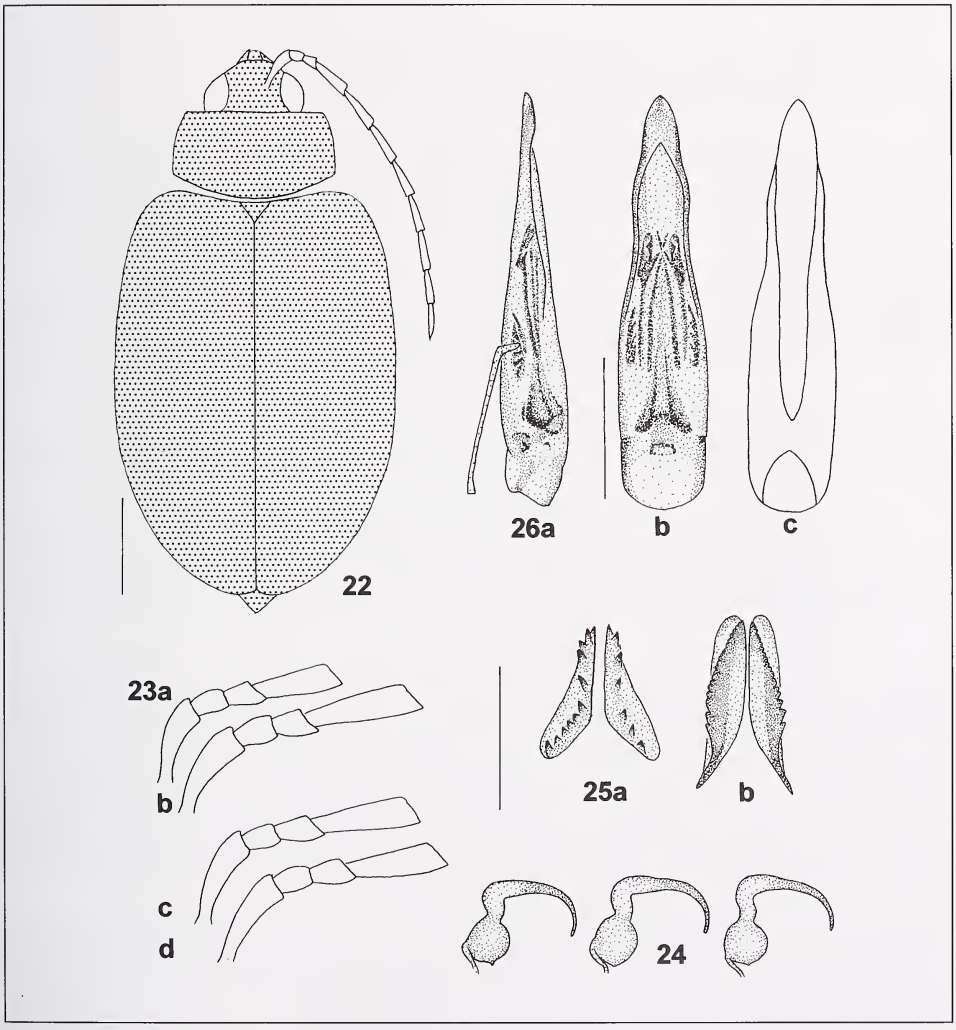
M. alluaudi is on average smaller (4.60–5.75 mm), antennal articles are slenderer, prothorax and head are entirely pale yellow. However, at Mt. Kenya few specimens of *M. alluaudi* with reddish yellow prothorax were found, and since the coloration of the prothorax is usually also slightly paler in *M. miltinoptera*, single specimens of both species cannot be distinguished without doubt by their coloration only. Median lobe of *M. alluaudi* is shorter, and more homogeneously conical (Wagner in press), and especially the lateral spiculae do not have an apex as complex as in *M. miltinoptera*. Furthermore, *M. castaneipennis* is similar to *M. miltinoptera* in size, but its coloration is carmine red, and genital characters are very different (see below).



Figs 22–26. *Monolepta miltinoptera* Weise, 1909. – 22: colour pattern; 23: basal antennal articles (a, b: ♂; c, d: ♀); 24: three different spermathecae; 25: bursa-sclerites (a: dorsal, b: ventral); 26: median lobe; lateral view (a), dorsal (b), ventral, without endophallic structures (c).

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Redescription:

Total length: 5.30–6.10 mm (mean: 5.78 mm; n = 4).

Head: Red to yellowish red (Fig. 22). Antennae entirely yellow, long, articles 4 to 10 elongated, 3 x longer than wide at distal end. Articles 2 and 3 short, especially in males third article not longer than wide at distal end (Fig. 23). Length of antennal articles 2 to 3: 1.00–1.05 (mean: 1.01), length of articles 3 to 4: 0.32–0.36 (mean: 0.34).
Thorax: Prothorax red to yellowish red. Pronotal width 1.65–1.80 mm (mean: 1.66 mm), ratio length to width: 0.55–0.58 (mean: 0.56). Elytral length 4.50–5.00 mm (mean: 4.85 mm), width of both elytra 3.00–3.50 mm (mean: 3.34 mm), ratio length of elytron to maximal width of both elytra: 0.68–0.71 (mean: 0.69). Elytra homogeneous carmine red. Scutellum red. Meso- and metathorax red or yellowish red. Legs yellow to reddish yellow.

Abdomen: Red.

Female genitalia: Nodulus of spermatheca large, middle part and cornu long and slender (Fig. 24). Dorsal part of bursa-sclerites very large, elongated, with strong spines (Fig. 25a), ventral part large, outer margin strongly serrated (Fig. 25b).

Male genitalia: Median lobe sub-conical, strongly narrowed at apex, and additionally narrowed after the middle (Figs 26b, c), apex of median lobe in lateral view slightly enlarged (Fig. 26a). Tectum long, enlarged beyond apex, ventral groove wide, apical half conical, basal half narrower (Fig. 26c). Lateral spiculae long, with complex enlargement at apex, two long, slender median spiculae, ventral spiculae slender with long, slender spines (Figs 26a, b).

Distribution: Recorded from Mt. Kenya and Mt. Kilimandjaro, and probably restricted to montane forests in Eastern Africa. Type specimen found at 2000 m. The similar, and probably closely related, *M. alluaudi,* and a further species which is to be described as new, are also distributed in East African montane forests (Fig. 6).

Monolepta castaneipennis Laboissière, 1940a

Lectotypus: ♀ "Forêt Mayumbu, 2100 m, Nyamuragira, 14–26–VI–35, de Witte, Parc Nat. Albert" (MRAC). This designation. 1.25S/29.12E.

Paralectotypus: 1 ♀ "Forêt Naysheke, 1820 m, Nyamuragira, 14–26–VI–35, de Witte, Parc Nat. Albert" (ZMUH). This designation. 1.23S/29.19E.
Laboissière (1940) indicated two specimens from Nyamuragira (at the border Rwanda-Congo) as types without indicating a holotype in the museal collection (MRAC) or his private collection (now ZMUH).

Other material revised: **Congo:** 1, Moero, Kasiki, 9.00S/28.45E, VI.1931, G. F. de Witte (MRAC); 1, N. Lac Kivu, Rankwi, 1.30S/29.00E, XI.1947, J. V. Leroy leg. (MRAC). – **Kenya:** 4, S. foot & slopes of Mt. Elgon, 1.00N/34.35S, 1700–1900 m, VI.1911, S. A. Neave leg. (3 BMNH, 1 ZFMK); 1, Kitale, Uasin Gishu, 1.01N/35.01E, 2100 m, 1932–33, C. Arambourg, P. A. Chappuis & R. Jeannel leg. (MNHN); 1, Mt. Elgon, vers est, 1.00N/34.80E, 2100 m, 1932–33, C. Arambourg, P. A. Chappuis & R. Jeannel leg. (MNHN). – **Tanzania:** 1, Lake Rukwa Area, 7.45S/32.50E, IV.1938, D. G. MacInnes leg. (NMK); 1, Mbeya, 8.54S/32.39E, Mt. T.T.(?), 2500 m, V.1938, D. G. MacInnes leg. (NMK); 1, Nyika plateau, 4.30S/38.30E, XII.1977, R. Joque (MRAC). – **Uganda:** 1, Kilembe, 0.20N/29.54E, Ruwenzori, 1500 m, XII.1934–I.1935, B. M. E. Afr. Exp. (BMNH).

Diagnosis: *M. castaneipennis* is similar in size and proportion to *M. miltinoptera*, but has a darker carmine red colour, and differs strongly in genitalic characters. Other similar species from Central and East Africa have a yellow head and prothorax like *M. alluaudi*, or have red and black coloured elytra and prothorax like *M. rubricosa, M. jeanneli, M. panicea, M. constantini, M. clarae, M. garambaensis* and *M. mpangae*.

Redescription:

Total length: 5.00–6.80 mm (mean: 5.85 mm; n = 8).

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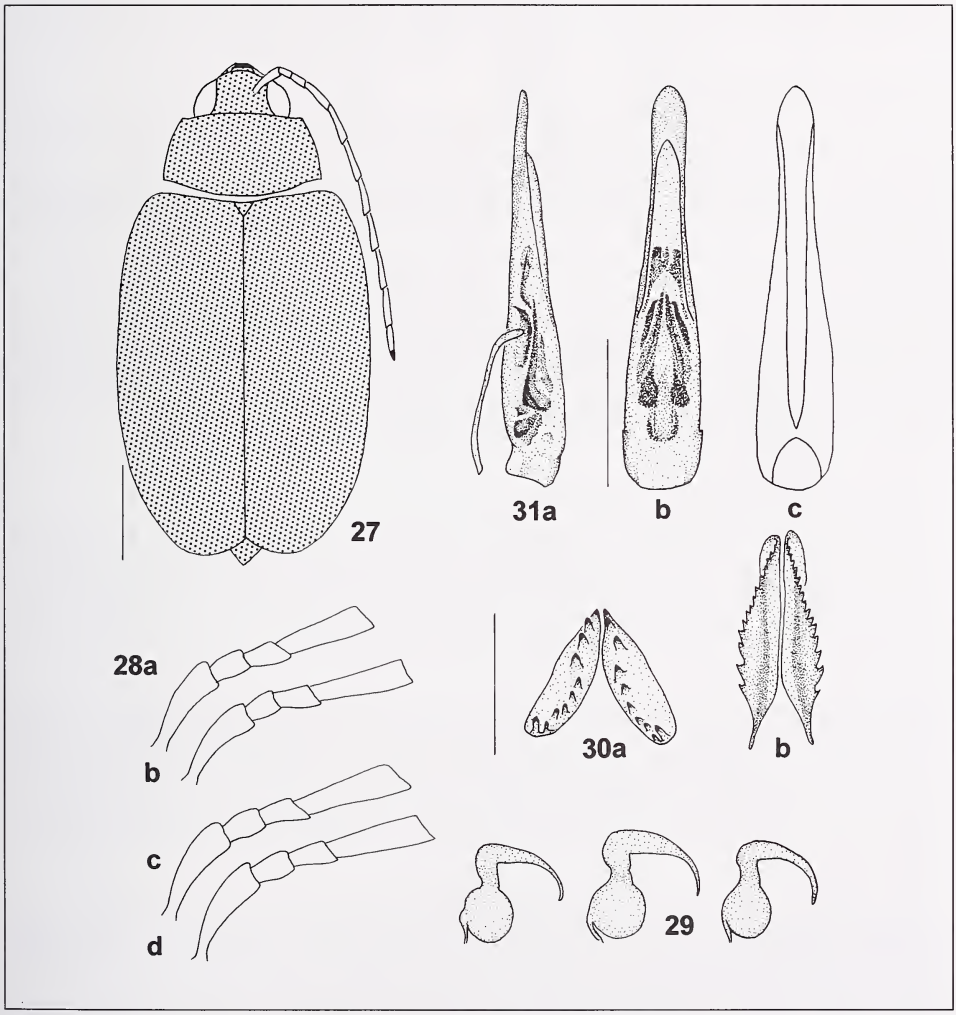
Head: Red, antennae entirely yellow, or at least tip of last article red (Fig. 27), long and slender. Articles 4 to 10 elongated, more than 3 x longer than wide at distal end. Length of antennal articles 2 to 3: 1.00–1.05 (mean: 1.01), length of articles 3 to 4: 0.32–0.36 (mean: 0.34; Fig. 28).

Thorax: Prothorax carmine red, occasionally yellowish red. Pronotal width 1.65–1.80 mm (mean: 1.66 mm), ratio length to width: 0.55–0.58 (mean: 0.56). Elytral length 4.50–5.00 mm (mean: 4.85 mm), width of both elytra: 3.00–3.50 mm (mean: 3.31 mm), ratio length of elytron to maximal width of both elytra: 0.66–0.69 (mean: 0.67). Elytra entirely carmine red.



Figs 27–31. *Monolepta castaneipennis* Laboissière, 1940. – 27: colour pattern; 28: basal antennal articles (a, b: ♂; c, d: ♀); 29: three different spermathecae; 30: bursa-sclerites (a: dorsal, b: ventral); 31: median lobe; lateral view (a), dorsal (b), ventral, without endophallic structures (c).

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Scutellum red. Meso- and metathorax red or yellowish red. Legs yellow to pale reddish yellow.

Abdomen: Red.

Female genitalia: Nodulus of spermatheca very large, middle part and cornu long and slender (Fig. 29). Dorsal part of bursa-sclerites very large, elongated, with strong spines (Fig. 30a), ventral part large, outer margin strongly serrated (Fig. 30b).

Male genitalia: Median lobe slender, sub-conical, slightly narrowed beyond middle (Fig. 31b), apex of median lobe in lateral view slightly enlarged (Fig. 31a). Tectum long, slender, ventral groove narrow (Fig. 31c). Lateral spiculae long, with complex enlargement at apex, two long, slender median spiculae, ventral spiculae slender with long, slender spines (Figs 31a, b).

Distribution: Recorded from montane areas along the Albertine Rift from Uganda to western Tanzania and from Mt. Elgon, western Kenya, and Mt. Meru (Fig. 6).

Monolepta clasnaumanni sp. n.

Holotype: ♂ "Kivu, Terr. Masisi, Laos Mokoto, 1800 m, VI.1969, N. Leleup", "Biot. No. 82, humus en forêt" (MARC). Congo: 01.24S/28.49E.

Paratypes: **Congo:** 1, same data as holotype (ZFMK). – **Uganda:** 1, Kigazi, 0.50S/31.20E, II.1912, C. H. Marshall (BMNH); 1, Butiaba, E. Lac Albert, 1.48N/31.21E, IX.1937, H. J. Brédo (MRAC).

Derivatio nominis: Dedicated to my teacher and friend Clas Michael Naumann.

Diagnosis: Size, coloration, the relatively narrow pronotum, and the relative length of the third antennal article, which is much longer than the second, makes *M. clasnaumanni* unmistakable. Species of equal length with entirely red coloration like *M. castaneipennis* and *M. miltinoptera*, have pronotal indices between 0.55 and 0.58 (*M. clasnaumanni*: 0.65–0.69), yellow antennae, and their overall coloration is carmine red or yellowish red.

Description:

Total length: 5.35–6.30 mm (mean: 5.81 mm; n = 4).

Head: Brownish red, labial and maxillary palpi, labrum yellow, antennal articles 1 to 2 yellow, dorsally brownish, articles 4 to 11 brown (Fig. 32). Articles 4 to 10 elongated, more than 3 x longer than wide at distal end, bristly setose. Third antennal article especially in females (Figs 33b, c) much longer than second, length of antennal articles 2 to 3: 0.67–0.75 (mean: 0.69), third article less than half as long as fourth, length of articles 3 to 4: 0.54–0.60 (mean: 0.57; Fig. 33).

Thorax: Prothorax brownish red or anteriorly brown, posteriorly reddish brown. Pronotal width 1.55–1.85 mm (mean: 1.71 mm), pronotum narrow, ratio length to width: 0.65–0.69 (mean: 0.67). Elytral length 4.15–5.10 mm (mean: 4.55 mm), width of both elytra: 2.70–3.40 mm (mean: 3.15 mm), ratio length of elytron to maximal width of both elytra: 0.68–0.71 (mean: 0.69). Elytra brownish red. Scutellum red. Mesothorax yellowish brown, metathorax reddish brown. Legs yellow, coxae, femora proximally, and tibiae distally brownish yellow.

Abdomen: Red.

Female genitalia: Nodulus of spermatheca very large, middle part and cornu very short, cornu with ridge at apex (Fig. 34). Dorsal part of bursa-sclerites small, slender, with strong spines (Fig. 35a), ventral part slender, outer margin finely undulated (Fig. 35b).

Male genitalia: Median lobe slender, sub-conical, strongly narrowed in the last fifth (Fig. 36). Tectum long, slender, ventral groove very broad (Fig. 36c). Lateral spiculae long, slender, with small spine, several long, slender median spiculae, ventral spiculae slender with long, slender spines (Figs 36a, b).

Distribution: Recorded from western Uganda and Kivu (Fig. 6).

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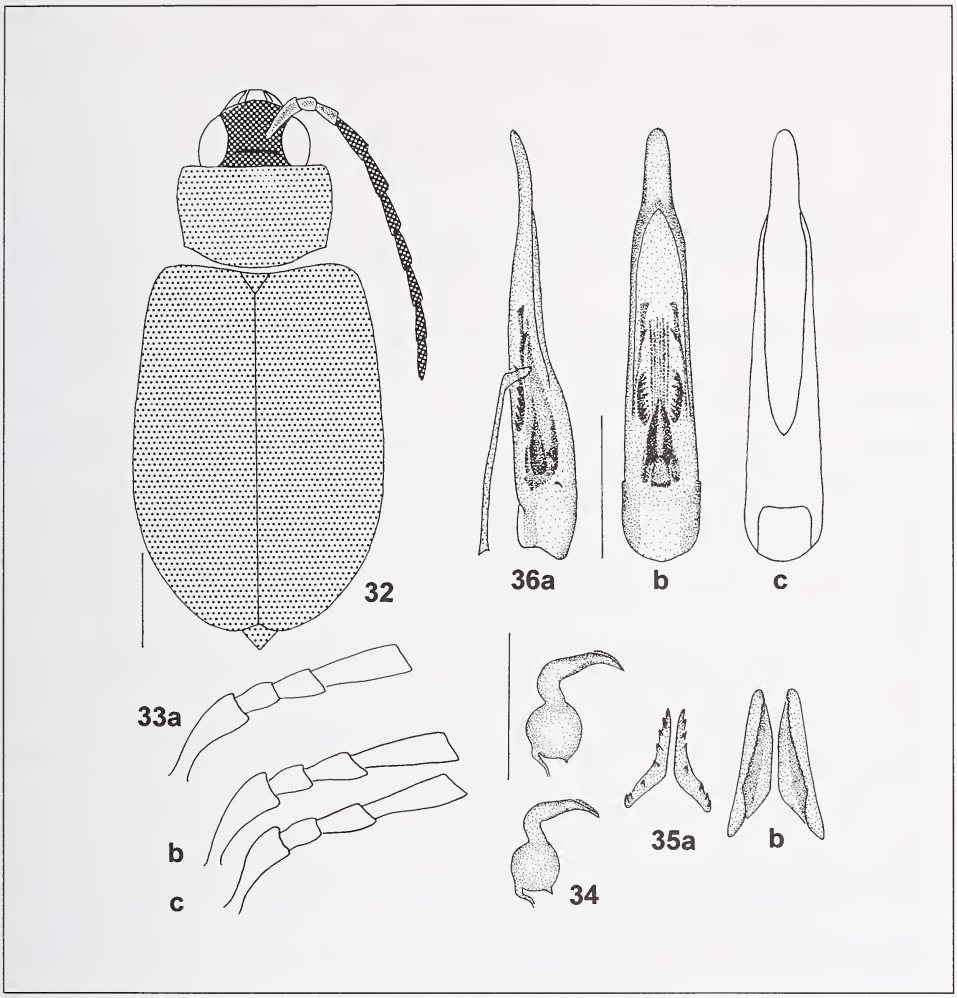

Figs 32–36. *Monolepta clasnaumanni* sp. n. – 32: colour pattern; 33: basal antennal articles (a: ♂; b, c: ♀); 34: two different spermathecae; 35: bursa-sclerites (a: dorsal, b: ventral); 36: median lobe; lateral view (a), dorsal (b), ventral, without endophallic structures (c).

Identification key

The key can be used for all Afrotropical *Monolepta* which have the following characters in common: 1. head, prothorax and abdomen yellowish red, carmine red, or partly brownish red; 2. elytra homogeneously red or reddish brown, or elytral disc reddish brown, elytral margins paler red; elytra without sharply delimited transverse bands, spots or margins; 3. legs entirely yellow, occasionally femora and tibiae partly brownish yellow.

1. Longer, total length 5.00–6.80 mm; distributed only in montane areas of Kenya, Uganda, Kivu and Tanzania 2
– Smaller, total length 3.00–4.50 mm; distributed in West, East and South Africa 4

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2. Homogeneously carmine red or yellowish red, antennae with exception of the last articles pale yellow, antennal articles 2 and 3 of same length (0.95–1.05), fourth article about 3 x longer than third (0.31–0.36); pronotum broad, ratio length to width: 0.55–0.58 3
– Pronotum and elytra red to brownish red, head on vertex and frons dark brownish red, antennal articles 4 to 11 brownish, antennal article 2 significantly shorter than 3 (ratio 2 to 3: 0.67–0.75), fourth article less than 2 x longer than third (ratio 3 to 4: 0.54–0.60; Fig. 33); pronotum narrow, ratio length to width: 0.65–0.69 (Fig. 32); total length: 5.35–6.30 mm; Kivu and western Uganda . . . . . *Monolepta clasnaumanni* sp. n.

3. Entirely carmine red; third antennal article longer than wide at distal end, ratio of articles 3 to 4 more than 0.40 (Fig. 28); nodulus of spermatheca very large (Fig. 29); median lobe narrow in the apical third (Fig. 31b); total length: 5.00–6.80 mm; Albertine Rift, western Kenya,Tanzania . . . . . *Monolepta castaneipennis* Laboissière, 1940
– Entirely red to yellowish red; third antennal article no longer than wide at distal end, ratio of article 3 to 4 less than 0.40 (Fig. 23); nodulus of spermatheca smaller, cornu longer (Fig. 24); median lobe enlarged in the apical third (Fig. 26b); total length: 5.30–6.00 mm; Mt. Kenya and Mt. Kilimandjaro . . . . . *Monolepta miltinoptera* Weise, 1909

4. Head and pronotum carmine red, elytra entirely reddish brown (Fig. 12), or reddish brown at disc, elytral margins paler red (Figs 1, 7), or disc even black (Fig. 1b); antennal article 2 and 3 elongated, of same length, or third longer (0.87–1.00) 5
– Entirely yellowish red (Fig. 17); third antennal article especially in males no longer than wide at distal end (Figs 18a, b), of same length as second or second longer (1.00–1.16); lateral spiculae of endophallus apically with discoidal, twisted enlargement (Fig. 21b); total length: 3.70–4.50 mm; southern Congo and Zambia . . . . *Monolepta flavipes* Laboissière, 1939

5. Elytra reddish brown or black on disc, margins paler red; antennal articles broader; dorsal part of bursa-sclerites with enlarged, spiny base (Figs 4a, 10a); Eastern and Southern Africa 6
– Elytra entirely reddish brown (Fig. 12); antennal articles 2 and 3 very slender (Fig. 13); dorsal part of bursa-sclerites long, very slender (Fig. 15a); total length: 4.20–4.70 mm; Ghana and Ivory Coast . . . . . *Monolepta ivorensis* sp. n.

6. On average shorter, total length: 3.00–4.30 mm; antennal articles slenderer and more elongated, fourth article about 2 x longer than third (0.47–0.54), articles 4 to 11 with very fine, yellow setae (Fig. 2a); median lobe very broad at apex (Fig. 5b); coastal regions of Kenya, Tanzania, Mocambique, Natal and Transvaal . . . . . *Monolepta marginella* Weise, 1903
– On average longer, total length: 4.10–4.50 mm; antennal articles shorter, fourth article more than 2 x longer than third (0.38–0.42), articles 4 to 11 with bristly black setae (Fig. 8a); median lobe narrowed at apex (Fig. 11b); Albertine Rift from Uganda to southern Congo . . . . . *Monolepta sonsoensis* sp. n.

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I cordially thank all curators and other colleagues who made material available (named under "material and methods"), and Wolfram Freund for his valuable work checking location data and producing the distribution map. This study was supported by Deutsche Forschungsgemeinschaft (Schm–1137/2–1).

Zusammenfassung

Material der afrotropischen *Monolepta* Chevrolat, 1837 mit durchgehend rotem Dorsum wurde revidiert. Die Färbung ist gelblich rot oder karminrot. Bei einigen Arten sind die Elytren insgesamt rötlich braun oder zumindest die Elytrenscheibe ist rötlich braun, während die Elytrenränder blasseres Rot aufweisen. Die Revision wurde an Arten mit hauptsächlicher Verbreitung in Ostafrika vorgenommen: *Monolepta marginella* Weise, 1903, *Monolepta miltinoptera* Weise, 1909, *Monolepta castaneipennis* Laboissière, 1940a, und *Monolepta flavipes* Laboissière, 1939. Drei neue Arten werden beschrieben: *Monolepta sonsoensis* sp. n.

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aus Uganda und Ost-Kongo, *Monolepta ivorensis* sp. n. von der Elfenbeinküste und Ghana und *Monolepta clasnaumanni* sp. n. aus Uganda und Kivu. Eine Verbreitungskarte und ein Bestimmungsschlüssel für die sieben Arten sind beigefügt.

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