

REVISION OF THE GENUS *FLEUROPS* HUSTACHE, 1931 (COLEOPTERA: CURCULIONIDAE: BRACHYDERINAE)

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Abstract.— *Fleurops* Hustache, 1931 is re-defined as a monotypic genus. *Fleurops cinereus* Hustache, 1931 is redescribed and illustrated. *Euonychus conorrhinus* Marshall, 1941 and *Fleurops kivuanus* Marshall, 1950 are proposed as synonyms of *F. cinereus* Hustache. Lectotypes are designated for *F. kivuanus* Marshall and *E. conorrhinus* Marshall.



Key words.— Coleoptera, Curculionidae, Brachyderinae, Afrotropical Region, taxonomy, synonyms, *Fleurops*.

INTRODUCTION

Hustache (1931) described the genus *Fleurops* (for *Fleurops cinereus* Hustache, 1931) and placed it in the subfamily Brachyderinae. Citing Marshall's "key" (Hustache did not cite the reference, but the key concerned is certainly the one to the genera of African Brachyderinae whose members have connate claws and no humeri, included in Marshall's 1919 paper), he compared his new genus to *Pseudoblosyrus* Marshall, 1919. In his short diagnose (Hustache 1931) he wrote "Tête seulement avec un fin sillon médian, séparée du rostre par un fin sillon oblique, anguleux et dringé en avant au milieu. Yeux modérément convexes. Les autres caractères analogues à ceux *Pseudoblosyrus* Marsh., à côté duquel il se place dans le tableau de G. A. K. Marshall. La base du prothorax est arguée." (Hustache 1931). Several years later Emden (1936, 1944), in his keys to the World Brachyderinae and in the catalogue of Emden and Emden (1939) placed *Fleurops* in the tribe Cneorrhini. Marshall (1941) described *Euonychus conorrhinus* (Tanyrhynchinae), and a few years later added another species, *Fleurops kivuanus* (Marshall 1950). At the same time, in the latter paper, he transferred *Euonychus conorrhinus* to the genus *Fleurops* and placed it in the Tanyrhynchinae, discussing differences between *Fleurops* and *Euonychus*. More recently Oberprieler (1995) suggested a transfer of *Fleurops* and *Euonychus* along with *Pseuonyx* Hustache, *Synptocephalus* Faust and *Synptocephalodes* Voss, from the Tanyrhynchini to the Cneorrhini. According to our, still unpublished, results the tribe Cneorrhini (sensu Emden and Emden 1939) is an assemblage of unrelated, often polyphyletic genera, requiring much further research. Despite the repeated attempts at an interpretation, the position of the genus *Fleurops* still appears unclear.

In our opinion the genus *Fleurops* is monotypic (with *Fleurops cinereus* Hust.) and should be included in the Cneorrhini only provisionally.

The materials used in this study come from the following collections (names of curators in parentheses).

- BMNH – The Natural History Museum, London (C. H. C. Lyal);
- JK – coll. J. Kania, Wrocław, Poland;
- MNHN – Muséum National d'Histoire Naturelle, Paris (H. Perrin);
- MRAC – Musée Royal de l'Afrique Centrale, Tervuren (H. M. André).

ABBREVIATIONS

- bl – body length,
- brw – width of rostrum base,
- bw – body width,
- el – elytra length,
- f – female,
- m – male,
- mpw – maximum pronotum width,
- pl – pronotum length,
- rl – rostrum length.

TAXONOMY

Fleurops Hustache, 1931

- Fleurops* Hustache, 1931: 60 (type species: *Fleurops cinereus* Hustache, 1931, by monotypy).
- Fleurops*: Emden 1936: 217 (key), 1944: 565 (key); Emden and Emden 1939: 231 (catalogue); Marshall 1950: 260 (characters distinguish-



Figure 1. *Fleurops cinereus*, female – Burundi: plaine de la Ruzizi, N'Dani S.

ing it from *Euonychus* Marshall, 1923); Oberprieler 1995: 163, 166 (taxonomic position).

Diagnose. In the tribe Cneorhinini *Fleuops* occupies an isolated position. It bears only a superficial similarity to *Leurops* Marshall, 1919. Besides characters of the tribe (Cneorhinini sensu Emden and Emden 1939) both these genera share the following combination of characters: oval body shape, moderately convex eyes (more distinctly convex in *Fleuops*) and the presence of median furrow on the frons, the furrow being prolonged onto the rostrum. As the only genus in the African Cneorhinini, *Fleuops* has a long rostrum (ca. 1.5× longer than its width at base), strongly narrowed apically and distinctly bent, as well as very short and wide second tarsal segment. The aedeagus in *Fleuops* is membraneous ventrally and dorsally, only lateral edges being strongly sclerified, and forming a kind of frame together with the apophyses; setae on apex absent (in *Leurops* aedeagus is evenly sclerified, with long setae on apex), eyes posteriorly delicately but distinctly emarginate (in *Leurops* eyes normally built, not emarginate).

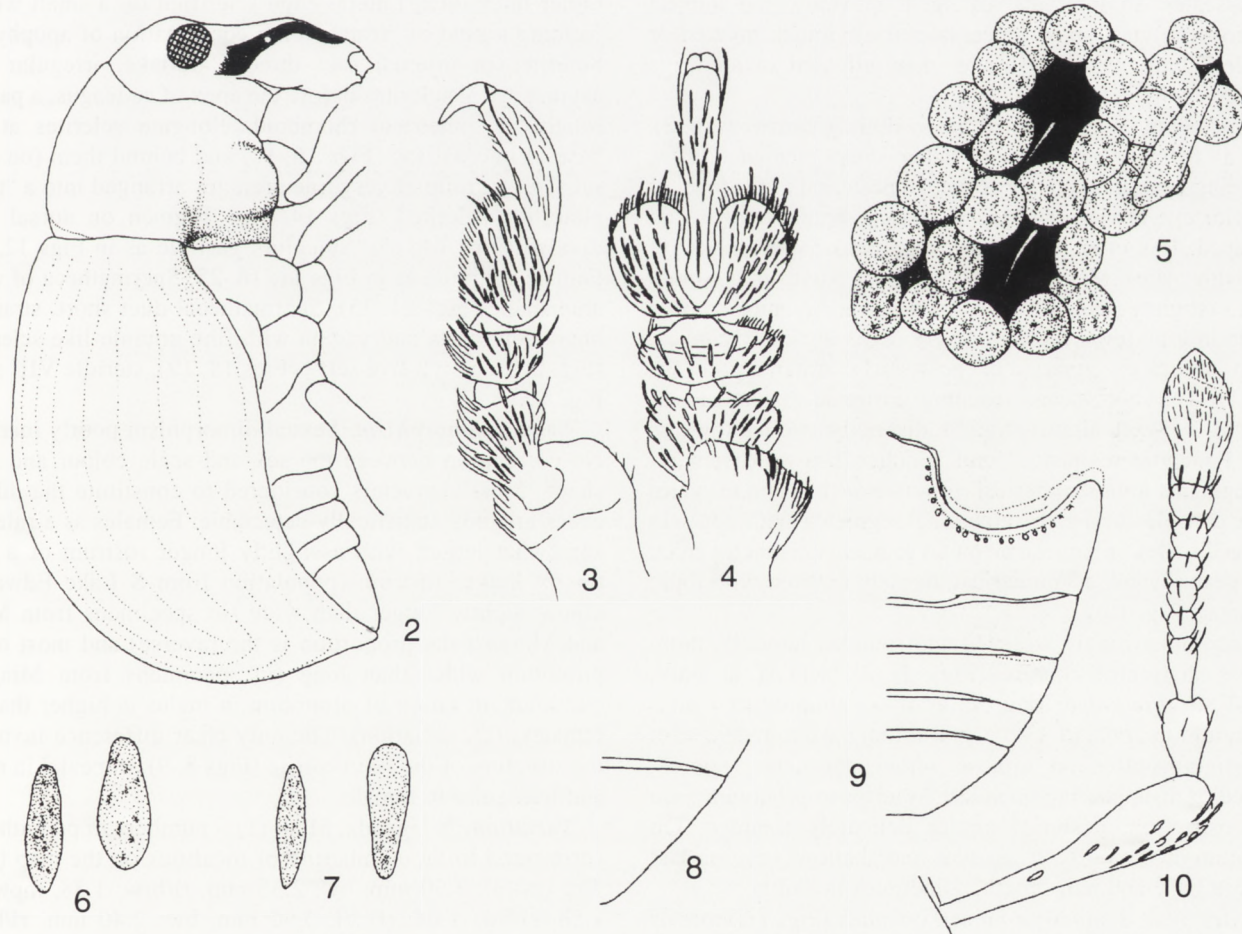
Description. Body length: 3.35–5.25 mm; body width: 2.05–3.20 mm.

Body brown or black, oval, covered with adherent and erect scales. Head separated from rostrum by a transverse groove. Median furrow on frons prolonged onto the rostrum. Rostrum distinctly longer than its basal width, bent. Eyes convex, posteriorly emarginate. Antennae inserted roughly at half rostrum length, flagellum 7-segmented. Pronotum wide, convex, on sides (in anterior view) angular. On pronotum a delicate median furrow, behind anterior margin and at base a delicate gutter. Elytra oval, with no humeri or tubercles, with ten punctate rows. Scutellum absent. On inner side of tibiae spines, at apex fore tibiae produced inwards, with a spine. No denticles on femora. Corbels enclosed. Tarsi wide, second segment strongly transverse, third segment emarginate till base, symmetrical. Claws connate, of equal length. Wings reduced. Male and female terminalia as in Figs 11–25.

Fleuops cinereus Hustache, 1931

(Figs 1–26)

Fleuops cinereus Hustache, 1931: 60. Locus typicus: Congo Belge: Manyéma: Mt Kalambo, holotype, female in MRAC – examined.



Figures 2–10. *Fleuops cinereus*: (2) body outline, side view, male (Manyéma); (3, 4) fore tarsus, male (Manyéma); (5) scales and punctation of intervals (Manyéma); erect scales on elytra, (6) Kivu, Sanghe (Ruzizi), (7) E Lake Albert; (8) ventrite 5, female (Kivu; Terr. Uvira, Kiliba); (9) abdominal sternites, male (Kivu; Terr. Uvira, Kiliba); (10) antenna, female (Manyéma).

Fleurops cinereus: Emden 1936: 217 (in the key as type species of *Fleurops*); Emden and Emden 1939: 231 (catalogue); Marshall 1950: 260 (diagnose).

Euonychus conorrhinus Marshall: 1941: 35. Loci typici: Uganda: Madi and E. Lake Albert, lectotype, present designation (Madi) and 4 paralectotypes – examined, and the other paralectotypes probably in BMNH **syn.nov.**

Fleurops conorrhinus: Marshall 1950: 260.

Fleurops kivuanus Marshall, 1950: 261. Locus typicus: Belgian Congo: Kivu, Sanghe (Ruzizi), lectotype (present designation) and one paralectotype in MRAC – examined, the second paralectotype probably in BMNH **syn. nov.**

Fleurops griseus [sic!] Hust.: Marshall 1950: 261.

Description. Body length (m): 3.35–5.25 mm, (f): 3.45–4.95 mm; body width (m): 2.05–3.20 mm, (f): 2.22–3.10 mm (cf. also variation).

Body brown or black, more or less distinctly oval (Fig. 1), evenly covered with light brown, dark grey or green scales, most often uniformly coloured, rarely with spots of lighter scales on sides of elytra and on top behind half length of pronotum and around eyes, and with fine dark spots forming a more or less distinct U-shaped band in anterior half of elytra (cf. variation). Scales adherent, round, not overlapping. Erect scales on intervals arranged unevenly, the longest anterior to elytral apex, lanceolate or elliptical, tapered or rounded at tip, 1.2–2.5× longer than adherent scales (Figs 5–7). No adherent setae.

Head behind eyes widened, frons slightly convex (Fig. 2), with a distinct, narrow and rather deep median furrow, extending from the transverse groove posteriad to the level of posterior eye margin. Groove separating head from rostrum V-shaped, less often U-shaped, sometimes completely covered with scales. Median furrow on frons passes into (sometimes vestigial) median furrow on rostrum. Antennal scrobes visible in top view on whole length. Eyes distinctly convex, evenly, delicately emarginate posteriorly. Antennae always light brown, short, scape reaching posteriad to almost half eye length. Scape almost straight, distinctly swollen towards apex. Funicular segments 1 and 2 longer than wide, remaining segments almost spherical, first two with adherent scales rather densely arranged, remaining segments with sparsely arranged scales or bare; setae on all segments distinctly erect. Club pear-shaped, asymmetrical, densely covered with light, fine setae (Fig. 10).

Pronotum strongly widened and rounded laterally, more or less distinctly convex (Figs 1, 2), widest at base, 1.51–1.80× wider than long. Anterior margin produced anteriorly in middle, behind it no constriction, base rounded, with a vestigial gutter on almost whole perimeter, poorest marked or disappearing on sides. Anterior to pronotum base no constriction, posterior angles delicately rounded. On pronotum median groove, narrow and shallow, best marked between base and half length, sometimes invisible.

Elytra oval, distinctly rounded on sides (Fig. 1), more or less distinctly convex, widest at 2/5 or half length. Base clearly emarginate and more or less strongly collar-like raised, especially on sides. Outside the raised basal part of elytra, humeral region delicately rounded. Rows (10 com-

plete) punctate, of regular course, rows 2–5 in anterior part of elytra bent inside. Punctures in rows fine, round, 2.4–3.0 puncture diameter away. Punctures with no granules on sides, each with a fine seta (Fig. 5). Intervals very delicately convex.

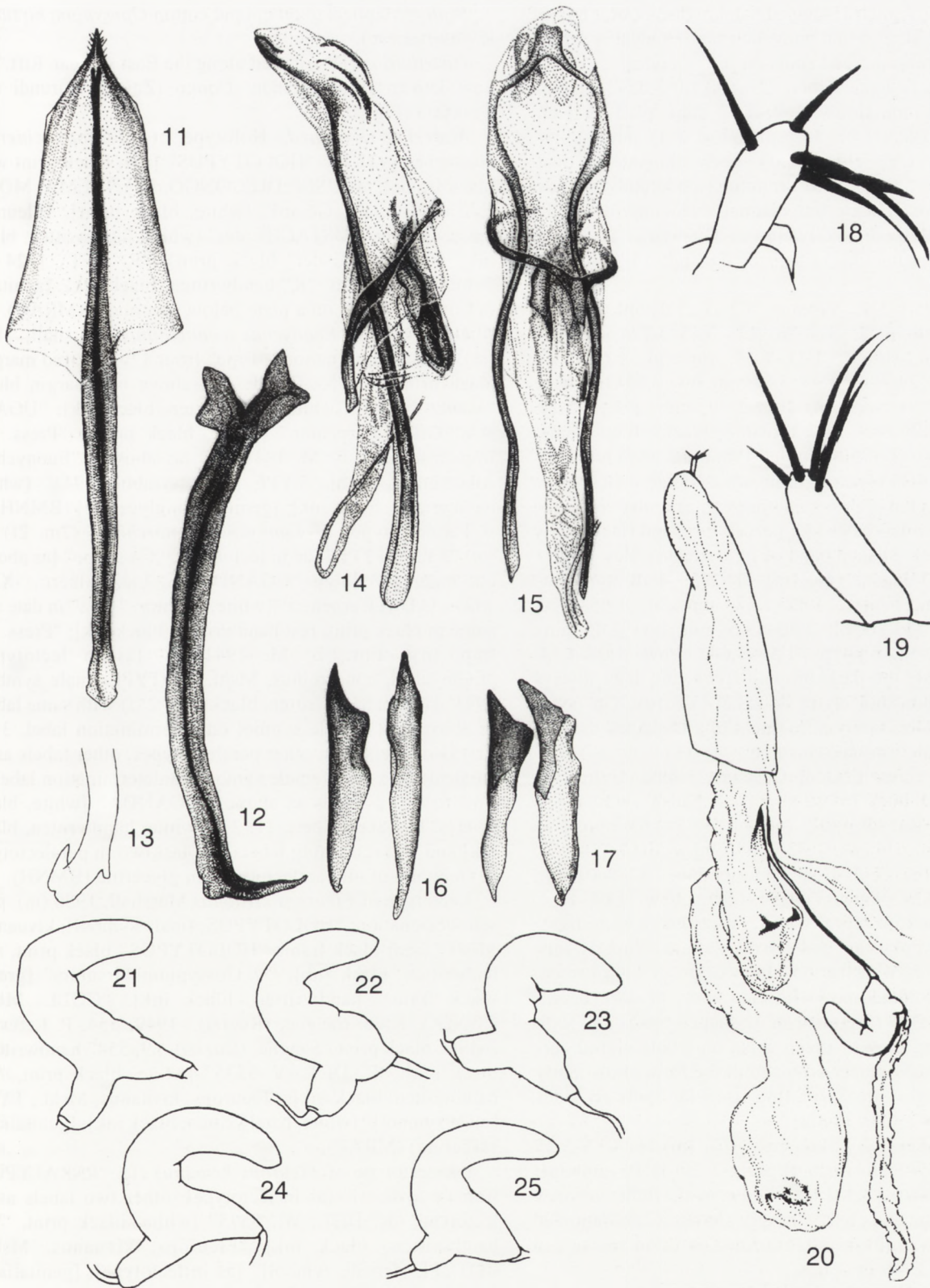
Legs slender, not very long, fore tibiae somewhat longer than pronotum, straight, at apex very gently widened outwards and clearly widened inwards, with a spine, on inner edge additionally four sharp, rather long and apically directed spines; on mid tibiae 3 similar spines, on hind tibiae no spines. Outer edge of corbels narrow, articular surface of hind legs with no or few scales. Tarsi narrow, short, segments 1 and 2 distinctly longer than wide (Figs 3, 4). Claws connate, of equal length.

Visible abdominal sternites in male and female as in Figs 8 and 9.

Aedeagus cylindrical (Figs 13, 14), apex prolonged into a narrow and rounded lamella, with no setae. Ostium shifted to the apex. Dorsal and ventral sides equally membranous. Internal sac protruding beyond the base of aedeagus, reaching posteriad for a distance somewhat exceeding apophysis length, further bent at 180° and prolonged into a rather thick duct. Lateral edge sclerified on a small width, forming a kind of “frame” on a continuation of apophyses. Sclerites in internal sac: three plate-like, irregular and asymmetrical sclerites before the apex of aedeagus, a pair of roughly symmetrical rhomboid, elongate sclerites at the base of internal sac (Figs 16, 17) and behind them (on dorsal side) a group of very fine granules arranged into a “third plate-like sclerite” (Figs 14, 15). Tegmen on dorsal side divided (Figs 14, 15). Spiculum gastrale as in Figs 12, 13. Female genitalia as in Figs 11, 18–25. Spermatheca of variable shape (Figs 21–25). Spermathecal duct short, straight, bursa copulatrix and vagina with fine granule-like sclerites (Fig. 20), on styli five setae (Figs 18, 19), sternite VIII as in Fig. 11.

Sexual dimorphism. Sexual dimorphism poorly marked. No correlation between the sex and scale colour and spot shape. Most characters considered to constitute the differences are only statistically detectable. Females as a rule are somewhat larger, with a slightly longer rostrum or a distinctly longer rostrum (population from S Lake Edward), elytra slightly longer than wide (in specimens from Madi and Mingazi the proportion is the reverse) and most often pronotum wider than long (in specimens from Mingazi width/length ration of pronotum in males is higher than in females) (cf. variation). The only clear difference involves the structure of the last ventrite (Figs 8, 9), trapezoidal in male and triangular in female.

Variation. N Uganda, Madi (1) – numbers in parentheses correspond to the numbering of localities on the map (Fig. 26); (m) bl: 3.90 mm, bw: 2.35 mm, rl/bw: 1.38, mpw/pl: 1.58, el/bw: 1.04; (f) bl: 3.95 mm, bw: 2.40 mm, rl/bw: 1.42, mpw/pl: 1.53, el/bw: 1.06. Body elongatedly oval, wholly black or only head black. Pronotum and elytra delicately convex. Adherent scales on elytra uniformly coloured, beige, or elytra with grey scales and spots of dark



Figures 11–20. *Fleurops cinereus*, (11, 18–25) female genitalia, (12–17) male genitalia: (11) sternite VIII (Manyéma); spiculum gastrale, (12) Kivu; Terr. Uvira, Kiliba, (13) Manyéma; aedeagus, (14) side view (Burundi: plaine de la Ruzizi, N'Dani S.), (15) ventral view (Manyéma); sclerites in internal sac of aedeagus (granulation omitted), (16) Mingazi, (17) S L. Edouard, Cp. Rwindi; stylus, (18) S L. Edouard, Cp. Rwindi, (19) Kivu, Terr. Uvira, Kiliba; (20) reproductive system, total view, (Kivu: Terr. Uvira, Kiliba); spermatheca, (21) Manyéma, (22 – 24) Kiliba, (25) Burundi: plaine de la Ruzizi, N'Dani S.

brown scales (irregular U-shaped band in the anterior half of elytra on intervals 1–6 and with such scales on entire length of row 1 and various sized spots on top of elytra).

W Uganda, E. Lake Albert (2); (m) bl: 3.35–3.97 mm, bw: 2.05–2.50 mm, rl/bw: 1.40–1.52, mpw/pl: 1.55–1.66, el/bw: 1.05–1.08; (f) bl: 3.87 mm, bw: 2.37 mm, rl/bw: 1.54, mpw/pl: 1.53, el/bw: 1.03. Body elongatedly oval, wholly dark or light brown. Pronotum moderately convex, sometimes with delicate but distinct wide imprints in its anterior half; elytra distinctly convex. On elytra light brown or beige scales, sometimes fine irregular spots of light green scales.

E Congo, Park Nat. Virunga, S Lake Edward (Rwinda, Kitembo, Bitshumbi) (3); (m) bl: 3.45–3.72 mm, bw: 2.05–2.47 mm, rl/bw: 1.11–1.45, mpw/pl: 1.63–1.73, el/bw: 1.02–1.12; (f) bl: 3.45–3.82 mm, bw: 2.22–2.35 mm, rl/bw: 1.48–1.71, mpw/pl: 1.59–1.79, el/bw: 1.15–1.17. Body elongatedly oval, dark brown or black, elytra (sometimes) and legs (as a rule) lighter. Pronotum and elytra delicately convex. On elytra light brown or beige scales, often spots of light green scales, sometimes an irregular U-shaped band of dark brown scales on intervals 1–6, and fine creamy spots. Rarely a U-shaped band of light green scales.

E Congo, Mingazi (4); (m) bl: 3.50–4.10 mm, bw: 2.22–2.50 mm, rl/bw: 1.42–1.57, mpw/pl: 1.65–1.70, el/bw: 1.12–1.13; (f) bl: 3.70–4.05 mm, bw: 2.45 mm, rl/bw: 1.42–1.56, mpw/pl: 1.59–1.64, el/bw: 1.08–1.14. Body oval, light or dark brown, elytra and legs always lighter. Pronotum and elytra delicately convex. On elytra light brown scales, rarely a fragment of a U-shaped band of dark brown scales on intervals 4–6.

vic. Ruzizi river: E Congo (Senge, Kiliba, Uvira), W Burundi (Bujumbura (=Usumbura), Kihanga (=Gihanga), "plaine de la Ruzizi") (5); (m) bl: 3.95–4.65 mm, bw: 2.45–2.90 mm, rl/bw: 1.32–1.58, mpw/pl: 1.51–1.60, el/bw: 1.02–1.10; (f) bl: 4.12–4.95 mm, bw: 2.52–3.10 mm, rl/bw: 1.35–1.58, mpw/pl: 1.54–1.70, el/bw: 1.08–1.14. Body oval, black, except brown legs, or whole body light- or dark brown. Pronotum and elytra as a rule distinctly convex. Colouration of scales on elytra beige or light brown, with no spots, sometimes with fine spots of dark brown scales in rows 3–5 (fragment of U-shaped band) and with little contrasting grey or green spots on whole elytral surface. Green scales sparser arranged in the form of distinctly contrasting longer streaks or fine irregular spots on sides and in posterior part of elytra.

E Congo, Maniema (Manyéma) (6); (m) bl: 4.85–5.25 mm, bw: 3.05–3.20 mm, rl/bw: 1.30–1.50, mpw/pl: 1.56–1.80, el/bw: 1.03–1.09. Body oval, light or dark brown. Pronotum and elytra strongly convex. Colouration of scales on elytra uniformly light brown, with no spots, less often with single green scales.

W Tanzania, Udjidji (=Ujiji) (7); (f) bl: 3.80 mm, bw: 2.42 mm, rl/bw: 1.52, mpw/pl: 1.53, el/bw: 1.11. Body oval, legs dark brown, the rest of body black. Pronotum and elytra strongly convex. Colouration of scales on elytra uniformly light brown.

Biology. Collected on upland cotton *Gossypium hirsutum* L. (Malvaceae).

Distribution. Distributed along the East African Rift. Till now known from Uganda, Congo (Zaire), Burundi and Tanzania (Fig. 26).

Material examined. Holotype of *Fleurops cinereus* Hustache, 1931 (f): "HOLOTYPUS" [red, black print with black frame]; "MUSÉE DU CONGO, MANYEMA, MONT KALAMBO, Dr. Gérard" [white, black print]; "Fleurops cinereus Type HUSTACHE det" [white, handwritten, black ink "HUSTACHE det" black print]; "R. DÉT., 1724 K" [white, black print, "K" handwritten, black ink]; [genitalia in Canada balsam on a plate below specimen] (MRAC).

Lectotype of *Euonychus conorrhinus* Marshall, 1941 (m), present designation: "Type" [round, white, red margin, black print]; "SYN-, TYPE" [as above but margin blue]; "Madi, V-1927" [white, handwritten, black ink]; "UGANDA, G.D.H.Carpenter." [white, black print]; "Press. by, Imp. Inst. Ent., B. M. 1941–13" [as above]; "Euonychus, conorrhinus, Mshl., TYPE [male symbol] 1941" [white, handwritten, black ink]; [genitalia in glycerine] (BMNH).

Paralectotypes of *Euonychus conorrhinus* (2m, 2f): 1. (m) "SYN-, TYPE" [as in lectotype]; "Co-, type" [as above, but margin yellow]; "UGANDA, E. Lake Albert, -XI - 1921., G.D.H.Carpenter" [white, country, "19..." in date and name in black print, rest handwritten, black ink]; "Press. by, Imp. Inst. Ent., B. M. 1941–13" [as in lectotype]; "Euonychus, conorrhinus, Mshl., COTYPE [male symbol] 1941" [white, handwritten, black ink]. 2 (f) with same labels as above, but female symbol on determination label. 3 (f) first two labels as in other paralectotypes, other labels as in paralectotype with female symbol on determination label. 4 (m.) first two labels as above; "UGANDA" [white, black print]; "E. Lake, Albert, 11. 21" [white, handwritten, black ink] and two remaining labels like last two in paralectotype 1. Genitalia of all paralectotypes in glycerine (BMNH).

Lectotype of *Fleurops kivuanus* Marshall, 1950 (m), present designation: "HOLOTYPUS, [male symbol], kivuanus, Mrsll." [red, black frame "HOLOTYPUS" black print, rest handwritten, black ink]; "s/ Gossypium hirsutum" [green, black frame, handwritten, black ink]; "COLL. MUS. CONGO, Kivu: Sanghe, (Ruzizi) -1949, 554, P. Lefèvre" [white, black print "Sanghe, (Ruzizi) ...9, 554" handwritten, black ink]; "R. DET., V. 5575" [white, black print, "V" handwritten, black ink]; "Fleurops, kivuanus, Mshl., TYPE [male symbol]" [white, handwritten, black ink]; [genitalia in glycerine] (MRAC).

Paralectotype of *Fleurops kivuanus* (f): "PARATYPUS, [female symbol]" [as in lectotype]; other two labels as in lectotype; "R. DET., W., 5575" [white, black print, "W" handwritten, black ink] "Fleurops, kivuanus, Mshl., COTYPE [female symbol]" [as in lectotype]; [genitalia in glycerine] (MRAC).

Other material. Burundi: Urundi: Kihanga (Ruzizi), 12-V-1957, J. Decelle, (1ex., MRAC); Burundi: plaine de la Ruzizi, N'Dani S., IV. 1966, (8 MRAC, 6 JK); Burundi: plaine de la Ruzizi, N'Dani S., I/III. 1966, (4 MRAC); Plaine

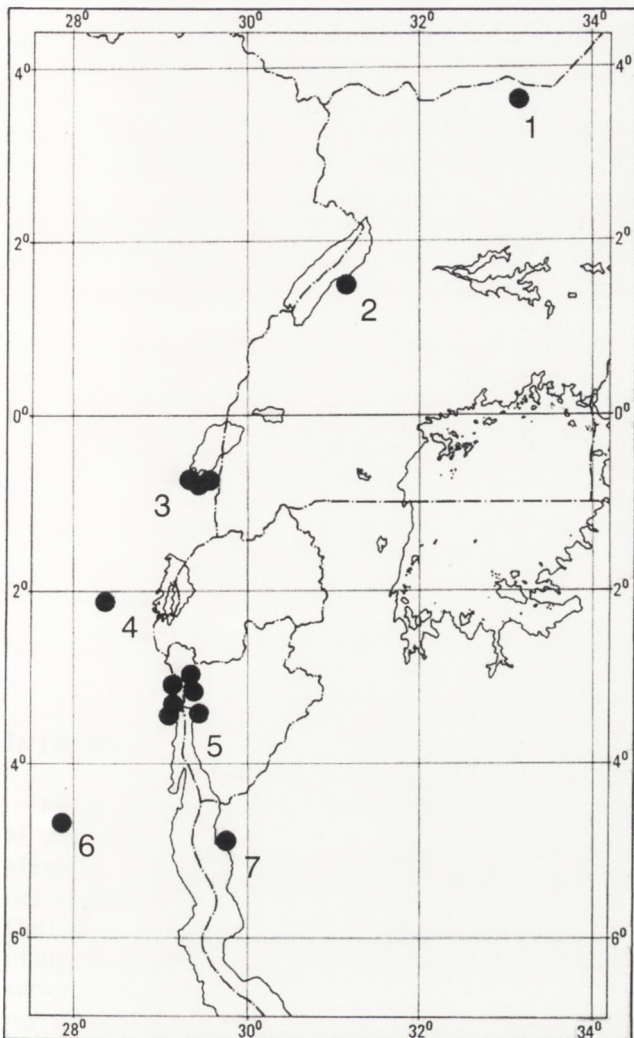


Figure 26. Distribution of *Fleuops cinereus* (numbers 1–7 correspond to the population numbers in the variation chapter)

de la Ruzizi, 9. IV. 1963., G. Pierrard, (1 MRAC, 1 JK); Urundi: Usumbura, III-1950, H. Bomans, (1 MRAC, 2 JK); Usumbura, don F. Carpentier, finiy 61 (2 MRAC). **Congo** [Zaire]: Kivu: Terr. Uvira, Kiliba, XII-1954, N. Leleup, (14 MRAC, 6 JK); Kivu: Kavumu à Kabunga km 82 (Mingazi), VIII/X-1951, H. Bomans, (6 MRAC, 3 JK); Kivu: Uvira, 16/23-III-1953, P. Basilewsky, (8 MRAC, 5 JK); Kivu: Uvira, prairie, 850 m, I-1957, N. Leleup, (2 MRAC); Parc Nat. Albert, S. L. Edouard: Kitembo, 925 m, 4-IV-[19]36, L.

Lippens, 59 (1 MRAC, 2 JK); Parc Nat. Albert, S. L. Edouard: Bitshumbi, 925 m, 15-IV-[19]36, L. Lippens, 77 (2 MRAC); Parc Nat. Albert, S. L. Edouard: r. Rwindi, 1000 m, 17-IV-1936, L. Lippens, 82 (3 MRAC); Parc Nat. Albert, S. L. Edouard: Cp. Rwindi, 1000 m, 25-IV-1936, L. Lippens, 115 (9 MRAC, 5 JK); Manyéma [Maniema], Mont Kalambo, Dr. Gerard, Musée du Congo, R. Dét. 2315, N (3 MNHN [one with label "Cotype" of *F. cinereus* – not type!], 1 JK). **Tanzania**: N.O. Tanganyika, Ujijidji, 9.IV.[18]97, Ramsay & Hösemann S. (1 JK).

Sites impossible to locate. Zw. Tanganika und Albert Edward See, Grauer, 1910, (2 MRAC). The area mentioned on the label belongs to Congo, Uganda, Rwanda and Burundi.

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