

Three new Clivinini species from Africa (Coleoptera: Carabidae: Scaritinae)

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Abstract. *Clivina* (*Leucocara*) *haladai* sp. nov. from the Central African Republic, *Clivina* (*Leucocara*) *facchinii* sp. nov. from Congo and Gabon, and *Brachypelus* *hlavaci* sp. nov. from Madagascar are described, illustrated including the external female genitalia and are compared with similar known African species.

INTRODUCTION

The genera and the species of the tribe Clivinini are broadly distributed within the African mainland as well as in Madagascar. The taxonomy of some subtribes, genera or species group needs a modern revision, in the other hand, two important articles were recently published by Balkenohl (2022, 2023).

The Afrotropical species of the genus *Clivina* Latreille, 1802 are rather poorly known, the latest revision with very incomplete descriptions of the several new species was done by Kult (1959). He also restored the subgenus *Eupalamus* Schmidt-Goebel, 1846 which later Bousquet (2009) renamed as *Leucocara* Bousquet, 2009.

The endemic flightless Madagascan genus *Brachypelus* was established by Putzeys, 1867 for a single species; Basilewsky (1973, 1976), later Bulirsch, Janák & Moravec (2005), Bulirsch & Moravec (2009), Kavanaugh & Rainio (2016) and Bulirsch & Janák (2019) subsequently described 11 species and / or keyed species of this genus.

MATERIAL AND METHODS

The specimens were dry-mounted and studied, including measurements and examination of the microsculpture, at a magnification of 98×. All type specimens of new taxa were studied and measured and were compared with the most similar species. Most of the specimens were placed in the collection of the first author. Length of body (including closed mandibles) is given with 0.05 mm accuracy; other measurements including ratios and means are down to two decimal places. All photographs of new species were prepared with a Nikon D1 digital camera mounted on a Nikon Labophot II binocular microscope equipped with lenses containing diaphragms. Label locality data of all specimens are quoted verbatim except standardized dates are used. The terminology of the external female genitalia follows Balkenohl (2022).

The following abbreviation is used to indicate the depository of specimens:
PBPC collection of Petr Bulirsch, Praha, Czech Republic.

Other abbreviations:

HT: Holotype; PT: Paratype(s); BSP: basal (prescutellar) setiferous puncture(s); DSP: dorsal setiferous puncture(s); SP: setiferous puncture(s); a single slash (/) separates data on different lines of the same label and two slashes (//) separate data on different labels.

RESULTS

Tribe Clivinini Rafinesque, 1815

Genus *Clivina* Latreille, 1802 (Clivinini Rafinesque, 1815)

Subgenus *Leucocara* Bousquet, 2009 (= *Eupalamus* Schmidt-Goebel, 1846 [nom. preocc.])

Afrotropical species of the subgenus *Leucocara* can be recognized from the other *Clivina* species by the following combination of characters: the posterior margin of the last ventral sternite has either two pairs lateral SP very close together or with only one pair, and the middle part of the clypeus is distinctly separated from the wings. According to Kult (1959), Afrotropical species could be divided into two species groups. The first new species belongs to the *C. madagascariensis* (= *natalensis* s. Kult, (1959)) group and the second one to the *C. rugiceps* group.

Clivina (Leucocara) madagascariensis (= *natalensis*) group

This group is characterized by the middle tibiae having very short or missing lateral tooth and by having two pairs of the lateral SP on the terminal sternite. Kult (1959) included 42 species and 10 subspecies in this group, later Basilewsky (1968) and Bulirsch & Magrini (2021) described two species of this group.

Clivina (Leucocara) haladai sp. nov.

(Figs. 1-2)

Type material. Holotype (♀): Centr[al] African Rep[ublic] / 50 km SW Bangui / 4°4'N 18°14'E 380 m / 29.iv.2010, J. Halada lgt., (PBPC).

Description. Habitus as in Fig. 1; length of body 8.70 mm in HT; pronotum 1.04 times as broad as long; 1.36 times as broad as head width; elytra 1.82 times as long as broad; 1.25 times as broad as pronotum width. Body dark piceous, almost black, elytral channel on apex, lateral parts of clypeus and supraantennal plates dark brownish; legs brownish, anterior femora slightly darker; tarsi and antennae dark brownish red, mouthparts and two basal antennomeres slightly lighter.

Head. Mandibles short and broad with narrowly rounded, oblique tip; labrum 7-setose; anterior margin of medial part of clypeus distinctly bordered, very slightly convex, separated

from lateral wings by shallow notch, wings as advanced forward as clypeus, separated from moderately convex, not reticulated supraantennal plates by rather blunt notch. Clypeal field barely transverse, slightly narrowed backwards, without microreticulation; clypeal suture transverse, short, deep and moderately wide. Frontal sulci anteriorly very wide and deep, laterally of clypeal suture wider, posteriorly of clypeal suture very deep and moderately broad, slightly divergent posteriorly, its bottom roughly reticulated. Neck constriction uninterrupted, broad and rather shallow, formed by about three rows of irregular, deep and dense punctures. Vertex not reticulated, with irregular and superficial central pit; antero-lateral margin of vertex distinctly separated from interior border of frontal sulci by sharp keel; latter connected with posterior margin of transverse furrow in blunt angle, its

anterior part moderately divergent up to mid-eye level then barely divergent up to neck constriction. Eyes very large, convex and prominent, genae very slightly developed, covered very small part of posterior margin of eyes. Antennae elongate, antennomeres 4-10 about 1.9-1.7 times as long as broad.

Pronotum. Subquadrate, in lateral view moderately vaulted; lateral margin below barely protruding, narrowly rounded anterior angles regularly, shortly convex, then almost directly, rather slightly divergent up to almost two thirds of pronotum length, then broadly convex to posterior angles formed by small and blunt lateral tooth. Anterior lateral SP in about anterior third of pronotum length, posterior lateral SP on level of lateral tooth, moved inward of lateral channel. Lateral channel moderately broad up to lateral teeth; reflexed basal margin slightly convexly narrowed to moderately distinct flange. Anterior transverse impression deep and rather narrow; median line moderately wide, with several very dense and very fine punctures. Surface of lateral and especially basal parts of pronotum with strip of isodiametric reticulation,



Figs. 1-2. *C. (Leucocara) haladai* sp. nov. (HT): 1- habitus; 2- external female genitalia.

disc shiny, with fine, irregularly transverse wrinkles and each side of basal half of median line with irregular, broad and sublongitudinal strip of fine and moderately sparse punctures. Base with very superficial, almost indistinct basal fovea and with a few irregular transverse waved wrinkles.

Elytra. Subparallel; in lateral view very broadly and superficially concave in about anterior fourth; base almost truncate to moderately distinct, rather narrowly rounded humeri, without humeral tooth; lateral margin subparallel, in anterior two thirds directly, very slightly broadened, then barely rounded; maximal width at about two thirds of length. Elytral striae 1-7 almost subequally deep throughout, in basal half densely and moderately deeply punctuate, apically punctures finer, on apex almost diminished. Intervals shiny, strongly convex in anterior two thirds, then slightly flattened medio-apically; interval 8 forming a very short and blunt keel just below humeri and blunt keel on apex, interval 7 on apex as flat as inner ones, laterally forming fine step, connected with interval 5. Base with deeply engraved suture, with BSP and irregular tubercles in intervals 1-2 and longitudinal tubercles in intervals 3-4, intervals 5-6 with irregular basal border, laterally connected with broad lateral channel. Interval 3 with four large DSP (posterior two near stria 3); striae long and parallel. Surface except very basal inclination without reticulation.

Thoracic wings. Fully developed.

Legs. Protibiae apically with very fine sulcus in lower half, with three lateral teeth: lower long and sharp, median distinctly shorter, upper almost indistinct; mesotibiae with very small subapical tubercle.

Venter. Mentum irregularly wrinkled, surface with rough, irregular reticulation; antero-lateral angles almost rounded; median keel barely elevated, its tip very broad and very blunt, almost transverse, barely shorter than lateral wings, latter posteriorly with thin keel. Proepisterna with several rather rough and deep punctures, with moderately rough isodiametric reticulation, laterally with distinct and deep transverse wrinkles. Sternites laterally without distinct punctures, laterally with moderately rough isodiametric reticulation, medially shiny, almost without reticulation; terminal sternite with two pairs fine SP close together.

Male genitalia. Unknown

Female genitalia (Fig. 2). Epipleurites with distinct, broadly rounded lateral rod; gonocoxites (stylomeres) falciform, long and moderately narrow, indistinctly curved; terminal segments with narrowly rounded tip, ventrally with three rather fine setae, without large nematiform setae.

Differential diagnosis. *C. haladai* sp. nov. is a characteristic member of the *C. madagascariensis* (= *natalensis*) group due to the structure of the head; the mesotibiae without any long thorn and especially by a pair of apical SP on each side of the posterior border of the terminal sternite being very close together. All African species of this group except *C. decellei* described by Basilewsky (1968) and *C. bartolozzi* established by Magrini & Bulirsch (2021), are partly described and keyed in Kult (1959). According to Kult's key the new species belongs to a small group of three species with the following combination of their characters: the elytra and the pronotum are without reticulation on the disc, the proepisterna

are roughly punctate, the elytral striae are distinctly engraved and the antennomeres 5-10 are distinctly longer than wide. The new species differs from all species of this subgroup by having the body much larger (only up to 7 mm in the other species). Among the other species of the *madagascariensis* group only *Clivina maxima* Kult, 1959 has the body similarly large (8.9 mm) nevertheless it can be differentiated mainly by having the rough reticulation on the elytra and the propisterna being without deep punctures.

Name derivation. With great pleasure we dedicate this new species to our friend and colleague Jiří Halada, specialist in Hymenoptera, collector of the type specimen.

Distribution. *C. (L.) haladai* sp. nov. is known from the single female type from Central African Republic.

***Clivina (Leucocara) rugiceps* group**

This group is characterized by the middle tibiae having a very short to missing lateral thorn (spur) and one pair of the lateral SP on the terminal sternite. Kult (1959) included three species and one subspecies in this group. Currently *C. sculptilis* Putzeys, 1867 is treated as a synonym of *C. rugiceps* Klug, 1832 and *C. schoutedeni* Kult, 1959 to *C. makolskii* Kult, 1959. The validity of both these synonyms should be verified.

***Clivina (Leucocara) facchinii* sp. nov.**

(Figs. 3-4)

Type material. Holotype (♀): Congo, Sangha Prov. / 5 km SW Ouesso 360 m alt. / 1°34'33''N 15°59'54''E / 30.x.2016, J. Halada lgt., (PBPC). Paratypes: (1 ♀): with the same data as holotype (PBPC); (1 ♀): Africa eq. Gabon / Plateau Bateke / 16.vi.2012, A. Susini, (PBPC).

Description. Body as in Fig. 3 Dorsal surface almost black, head with supraantennal plates and clypeal field brownish translucent, legs dark yellowish brown, mouthparts and antennae very slightly lighter. Measurement: total length 5.80 mm in HT and 6.15 mm, 5.75 mm in PT; pronotum in HT 1.01, in PT 1.01, 1.04 times as broad as long; pronotum in HT 1.25 and in PT 1.26, 1.22 times as broad as head; elytra in HT 1.97 and in PT 1.97, 2.00 times as long as broad; elytra in HT 1.12 and in PT 1.11, 1.16 times as broad as pronotum.

Head. Mandibles short and broad with narrowly rounded, oblique tip; labrum 7-setose; anterior margin of medial part of clypeus finely bordered, in middle rather strongly emarginate, separated from lateral wings by almost rectangular notches, wings distinctly less advanced forward than clypeus, antero-laterally rounded, separated from moderately convex, not reticulated supraantennal plates by rather blunt notch. Clypeal field transverse, not narrowed backwards, without distinct reticulation; clypeal suture transverse, deep and moderately wide. Frontal sulci anteriorly wide and deep, nearly engraved, barely wider laterally of clypeal suture, posteriorly of clypeal suture deep and moderately broad, slightly divergent posteriorly, its bottom with micro-tubercles, finely reticulated. Neck constriction formed laterally by moderately deep, and broad sulcus with one line of very dense punctures,

medially sulcus much finer and narrower, forming in middle very blunt angle. Vertex not reticulated, with fine central pit; lateral margin of vertex separated from interior border of frontal sulci by sharp keel only in its posterior half. Supraantennal plates laterally smooth, with irregular line of rough punctures along lateral margin of clypeal field; few very irregular punctures especially along transverse line. Eyes large, convex and prominent, genae slightly developed, covering small part of posterior margin of eyes. Antennae submoniliform, antennomeres 4-10 about 1.2 times as long as broad.

Pronotum. Subquadrate, in lateral view moderately vaulted; lateral margin below barely protruding, very narrowly rounded anterior angles regularly, shortly convex, then subparallel up to almost two thirds of pronotum length, then slightly, broadly convex to posterior angles formed by small and blunt lateral tooth. Anterior lateral SP in about anterior third of pronotum length, posterior lateral SP on level of lateral tooth, moved inward of lateral channel. Lateral channel moderately broad up to lateral teeth; reflexed basal margin almost directly narrowed to narrow flange. Anterior transverse impression deep and moderately broad; median line slightly finer and moderately narrow, both with several dense and fine punctures. Surface of lateral and especially basal parts of pronotum with strip of isodiametric reticulation, disc shiny, laterally with few fine, irregularly transverse wrinkles; basal half in both sides of median line with irregular, broad and sublongitudinal strip of rather deep and moderately sparse punctures. Base with indistinct basal fovea and with few irregular transverse wavy wrinkles.

Elytra. Subparallel; in lateral view very broadly and superficially concave in about anterior fourth; base almost truncate to moderately distinct, rather narrowly rounded humeri, without humeral tooth; lateral margin subparallel, above midlength indistinctly concave; maximal width just below midlength. Elytral striae 1-7 almost subequally deep throughout, slightly extending onto basal slope, basally 1-3 free, apically 1-4 free, 5-6 connected, in basal half densely and moderately deeply punctuate, latero-apical punctures barely finer. Intervals moderately shiny, very finely reticulated, strongly convex in anterior two thirds, then slightly flattened medio-apically; intervals 6-7 narrow just below humeri, interval 8 formed as very thin keel below humeri and on apex. Base with moderately deeply engraved suture, with BSP and irregular tubercles in intervals 1-2 and longitudinal tubercles in intervals 3-4. Interval 3 with four moderately large DSP in / near stria 3; striae long and parallel.

Thoracic wings. Fully developed.

Legs. Protibiae apically with very fine sulcus and with three lateral teeth: lower long and sharp, median shorter and sharp, upper small, moderately blunt; mesotibiae with distinct, very short lower tubercle and laterally with next 4-5 small setose tubercles.

Venter. Surface of mentum with moderately rough reticulation, broadly and rather deeply concave along median keel; antero-lateral angles rounded; median keel strongly and narrowly elevated, its tip broadly angulate, not shorter than lateral wings. Proepisterna with indistinct punctures, laterally with moderately fine isodiametric reticulation and with a few moderately fine transverse wrinkles. Sternites latero-basally with distinct group of punctures, laterally with moderately fine, almost isodiametric reticulation; terminal sternite with group of punctures along entire anterior margin, with one pair of basal SP.

Male genitalia. Unknown.



Figs. 3-4. *C. (Leucocara) facchini* sp. nov. (HT): 3- habitus; 4- external female genitalia.

Female genitalia (Fig. 4). Epipleurites with lateral rod in middle almost rectangular; gonocoxites (stylomeres) falciform, long and narrow, regularly curved; terminal segments with tip almost needle-like, with one very long and large nematiform seta just below base.

Differential diagnosis. *C. facchini* sp. nov. is a characteristic member of the *C. rugiceps* group due to the mesotibiae being without a long thorn and especially by a single apical SP on each side of the posterior border of the terminal sternite. It can be easily distinguished from both known valid species (including both taxa, currently considered as their synonyms) by the head having the antennomeres 4-10 distinctly longer than wide and having the surface without longitudinal rugae and by the pronotum being more parallel laterally and especially having in the basal half in both sides of the median line irregular, broad and sublongitudinal strip of the rather deep and moderately sparse punctures (all remaining taxa of the group have the pronotum smooth, without rough punctures). *C. facchini* sp. nov. differs from all species of the *C. madagascariensis* group by the terminal sternite having only one pair of SP.

Name derivation. Patronymic, in honor of our friend Sergio Facchini (Piacenza, Italy), well known and excellent entomologist.

Distribution. *C. (L.) facchini* sp. nov. is known from Congo and Gabon.

Genus *Brachypelus* Putzeys, 1867

This endemic flightless genus is known exclusively from Madagascar by 16 species predominantly from its Eastern part. The species of this genus live in mostly wet indigenous forests and can be collected by sifting forest litter.

Brachypelus hlavaci sp. nov.

(Figs. 5-6)

Type material. Holotype (♀): Madagascar, AJR-Jan2024 / Anjozorobe forest, 6-9.i.2024 / S 18°24'35'' E 46°56'45'' +/- 500 m / 1290-1420 m, sifting forest litter / Winkler app. extraction, P. Hlaváč lgt., (PBPC).

Description. Habitus as in Fig. 5; length of body 4.90 mm. Surface dark piceous, antennae and mouthparts rusty brown, legs dark rusty brown; underside piceous.

Head (Fig. 5). Smooth, convex, with very fine micropunctures. Anterior margin of clypeus slightly emarginated, distinctly bordered, lateral lobes protruded anteriorly, slightly separated from convex supraantennal plates. Transversal furrow distinct, moderately impressed; facial furrows deep, divergent posteriorly; broad with reticulated bottom. Eyes very narrow almost twice narrower than width of antennomere 2. Antennae moniliform, with outer antennomeres nearly globose. Labrum 7-setose, median seta finer.

Pronotum. Slightly trapezoid, moderately vaulted from lateral view; 1.15 times as wide as long, 1.75 times as wide as head, with rather regular, moderately deep isodiametric reticulation, surface without distinct micropunctures. Lateral channel moderately broad and entire; lateral margins in anterior half directly, in posterior half barely convexly attenuated anteriorly; maximum width behind second third of its length, before posterior SP; posterior angles rather narrowly rounded, anterior ones narrow, distinctly protruded anteriorly. Anterior transverse impression broad, superficial, medially almost indistinct, median line strongly impressed and broad, broadened basally, distinct towards base.

Elytra. Convex, outline ovate, maximum width just before middle; 1.56 times as long as wide, 1.13 times as wide as pronotum, 2.05 times as long as pronotum; base nearly rectilinear to stria 4, then barely sloping; humeri rather narrowly rounded; humeral margin with small, sharp humeral denticle. BSP distinct, superficially connected with striae 1-2. All intervals almost regularly, moderately deeply reticulated. Lateral channel wide, continuous, at base extended to stria 4. Elytral striae deeply impressed, moderately deeply, irregularly punctate, not weakened apically, abruptly diminished on very apical inclination. Interval 3 without DSP in / near stria 3. Intervals 1-5 moderately strongly, intervals 6-8 more strongly vaulted on apex.

Legs. Protibiae moderately narrow from lateral view.

Venter. Sternites (except terminal sternite) distinctly reticulated, laterally finely rugose; terminal sternite with deep furrows: in middle subparallel transverse, latero-apically converging to posterior margin, forming very broad, irregular letter "u." Epipleura of elytra and proepisterna similarly reticulated, latter with a few fine, transverse irregular wrinkles along lateral margin.

Aedeagus. Unknown.



Figs. 5-6. *Brachypelus hlavaci* sp. nov. (HT): 5- habitus; 6- external female genitalia.

Female genitalia (Fig. 6). Epipleurites with lateral rod broadly concave in basal half, then narrowly and strongly curved; gonocoxites (stylomeres) falciform, compact; basal half broad, apical one rather short, moderately curved, laterally with two short and broad nematiform setae.

Differential diagnosis. *B. hlavaci* sp. nov. with another two species belongs to a small group which is easily recognizable from all other taxa by having the humeri with the humeral teeth, the labrum being 7-setose, the eyes being narrower than antennomere 2 and by the pronotum and the elytra having the upper surface reticulated. The new species differs from both these species - *B. reticulatus* Basilewsky, 1976 and *B. minor* Alluaud, 1935 - by missing DSP (one DSP in both latter species) and by the terminal sternite having deep transverse furrows. Moreover from *B. minor* *B. hlavaci* sp. nov. can be distinguished by the pronotum having more distinct reticulation on the disc, and from *B. reticulatus* by having the elytra longer and by the eyes being much narrower (in the latter species the eyes are only barely narrower than the antennomere 2).

Name derivation. An eponym based on the surname of our friend and colleague, excellent entomologist Peter Hlaváč (Praha), collector of the type specimen.

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