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Review of *Clivina* subgenus *Dacca* PUTZEYS, 1863, with descriptions of two new species (Coleoptera: Carabidae: Clivinini)

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Abstract

Clivina (*Dacca*) *forcipata* (PUTZEYS, 1863) (Coleoptera: Carabidae: Scaritinae: Clivinini) is revised for the first time. A lectotype is designated. Two new species of *Dacca* PUTZEYS, 1863 are described, and the subgenus is diagnosed. All species are illustrated. A key to the species is proposed. Available records are listed.

Key words: Coleoptera, Carabidae, *Clivina*, *Dacca*, Oriental Region, revision, taxonomy.

Introduction

In the Oriental Region, the genus *Clivina* LATREILLE, 1802 comprises around 120 species (see BALKENOHL 2001, LORENZ 2019). KULT (1951) provided a key to the Oriental species groups and ANDREWES (1929) a key to the species of former British India. Beside the modern catalogue of LORENZ (2005, 2019), historical catalogues provide an overview of the *Clivina* fauna of India and Sri Lanka (CSIKI 1927, 1933, ANDREWES 1928, 1930). Although not all groups are included in the key of KULT (1951), it is still useful for orientation. Some species and species groups have been treated in recent years (DOSTAL 2012, DOSTAL & BULIRSCH 2016, BALKENOHL 2017a–b, 2018). Because most of the species groups have not been revised so far, exact determination for many species is often speculative.

PUTZEYS (1863) erected the monotypic Clivinini genus *Dacca* (the name refers to Dhaka, the capital city of Bangladesh) based on *Dacca forcipata* PUTZEYS, 1863, which can be easily recognised due to two remarkable characters: the nine-setose labrum and the long falcate mandibles. ANDREWES (1929) considered the species to be related to the *C. lobata* group and synonymized *Dacca* with *Clivina*. This opinion was already reflected earlier by ANDREWES (1928).

So far, *C. forcipata* has not been revised. When working on historical and recently collected material, differences between specimens became evident, leading to the conclusion that *C. forcipata* is not a single species but represents in fact a group of species.

LORENZ (2005, 2019) treated *Dacca* as a subgenus of *Clivina* but without formal taxonomic action.

This contribution aims to revise *C. forcipata*, to clear the taxonomic status of *Dacca* by formally establishing it as a subgenus, and to describe two new species.

Material and methods

In total, 47 specimens were examined.

In general, terms, descriptions of characters and methods are based on BALKENOHL (2001). Specimens were examined with a Leica M205-C stereomicroscope and a Reichert-Jung Polyvar compound microscope. Measurements were taken electronically using the integrated and automatically calibrating measurement system of the IMAGIG Client software. If available, up to ten specimens of each species were measured including the type material. Body length was mea-

sured from the apex of the longer mandible in the closed position to the apex of the elytra. The length of the pronotum was measured along the median line including the posteriorly protruding base, and the width was determined at the widest part. The length of the elytron was measured from the anterior basal tip to the tip of the apex. The elytral width was measured at the maximum width of both elytra in closed position and is referred to as the width of the specimen. The limits of the measurements and arithmetic means ($\bar{x}$) are provided for the values of the species including ratios calculated. For the description of the antennae and for the length of the antennomeres five to ten, the definition developed in BALKENOHL (2020) was used. The length/width ratio of antennomere six is given in addition.

The dissected genitalia were mounted on transparent celon cards and embedded in polyvinylpyrrolidon. After clearing overnight, these cards were fixed on an object glass slide and viewed under the compound microscope. Descriptions of the genitalia were made using transmitted light (from bottom up) or with top light (Reichert-Jung Polyvar compound microscope; magnification 80–500 ×), or both light regimes combined. Terms used for the male genitalia refer to the natural position in undissected specimens. For the description of the female coxites, the terminology of DEUVE (1993) was used.

Photographs were taken with a 5-megapixel Jenoptic core 5 digital camera either with the Leica M205-C stereomicroscope using a motorised focussing drive and diffused light with Leica hood LED5000 HDI for the single pictures stacking automatically, or with the Polyvar compound microscope using the drive manually. All pictures are composites, processed and optimized by using IMAGIG Client software and enhanced with CorelDRAW Graphics Suite X5.

The complete information on the labels is given verbatim in the description chapters as it appears on the labels including spelling, spacing, and punctuation. Additional information is provided in square brackets.

The material is deposited in the following collections:

ADCW	Alexander Dostal collection (including collection of Karel Kult), Vienna, Austria
BMNH	Natural History Museum, London, United Kingdom
ETHZ	Eidgenössische Technische Hochschule Zürich, Switzerland
MBCB	Michael Balkenohl collection, Bonstetten, Switzerland
MNHN	Muséum national d'Histoire naturelle, Paris, France
NHMB	Naturhistorisches Museum, Basel, Switzerland
RBINS	Royal Belgian Institute of Natural Sciences, Brussels, Belgium

Other abbreviations used:

L/W	ratio of length/width (used for the pronotum, elytra, and sixth antennomere)
SSO	subapical setose organ (situated at the coxostylus/gonopod IX)

Clivina subg. *Dacca* PUTZEYS, 1863

TYPE SPECIES: *Dacca forcipata* PUTZEYS, 1863, by monotypy.

DIAGNOSIS: The subgenus *Dacca* is recognizable by the following characters: medium size (5.4–6.3 mm), colouration piceous or fuscous, habitus subcylindrical, labrum nine-setose, clypeus with four anteriorly projecting teeth of different shape, frons with transverse sulcus and posteriorly with fovea or longitudinal sulcus, neck constriction distinct, mandibles conspicuously falcate and elongated. The pronotal pleura are not visible in dorsal view, ventro-laterally they show a different pattern of rugae. On the elytron, striae one to three free at the base, or striae one and two joining at base, with four dorsal setigerous punctures on the third interval, and with or without short sulcus-like scutellary striole at the base of the elytron. Distribution of setae on the dorsal surface as in *Clivina* s.str. The mesotibial spur is distinct and furnished with a subapical

seta. At the margin of the last visible abdominal sternum, the two setigerous punctures are widely spaced from each other. The aedeagus is not very sclerotized, and is distinctly bent in the middle. The apex is not elongated stick-like or spatulate as in many *Clivina* species. The female coxostyli one and two are fused. In the Oriental Region, *Dacca* is the only subgenus of *Clivina* with a nine-setose labrum and such long falcate mandibles.

DISTRIBUTION: Nepal, India, Bangladesh, Sri Lanka.

***Clivina* (*Dacca*) *forcipata* (PUTZEYS, 1863)**

(Figs. 1, 4, 7, 10, 13)

Dacca forcipata PUTZEYS, 1863: 68. – PUTZEYS 1867: 25; CSIKI 1927: 493.
Clivina forcipata NIETN. [sic]: ANDREWES 1928: 150.
Clivina forcipata (PUTZEYS, 1863): ANDREWES 1929: 380; 1930: 114; CSIKI 1933: 638; KULT 1951: 25; BALKENOHL 2001: 15.
Clivina (*Dacca*) *forcipata* (PUTZEYS, 1861 [sic]): LORENZ 2005: 144; 2019: not paginated.

TYPE MATERIAL: **Lectotype** ♂ (RBINS), by present designation: "Dacca Stev." [yellow, handwritten] / "Dacca forcipata" [yellow, handwritten] / "Soc. Ent. Belg. Coll. PUTZEYS" [grey, blue printed, framed] / "Syntype" [white, red printed, black framed]. **Paralectotypes**: 1 ♂ (RBINS): "Dacca Stev." [yellow, handwritten] / "Soc. Ent. Belg. Coll. PUTZEYS" [grey, blue printed, framed] / "Syntype" [white, red printed, black framed]; 1 ex. (RBINS): "Dacca forcipata (Helfer) C. Chd." [yellow, handwritten] / "Soc. Ent. Belg. Coll. PUTZEYS" [grey, blue printed, framed] / "Syntype" [white, red printed, black framed]; 1 ♂ (MNHN): "Dacca Stev." [yellow, handwritten] / "Dacca forcipata Putz." [yellow, handwritten] / "Ex Musæo Chaudoir" [light grey, grey framed, printed].

PUTZEYS (1863) based his description on six specimens. Four of them could be traced, three of them (RBINS) were labelled as syntypes, and one was identified among material from the MNHN based on the fact that the labels are identical to two of the syntypes from the RBINS.

In the lectotype, three tarsomeres of the right hind leg are missing. In one of the paralectotypes (MNHN), the head is damaged posteriorly, the pronotum anteriorly, and the elytra at the apex.

ADDITIONAL MATERIAL EXAMINED:

INDIA: 1 ♀ (RBINS): Calcutta / Soc.Ent.Belg. Coll. PUTZEYS; 1 ex. (BMNH): Calcutta 82.10 [code referring to Coleoptera from Barrackpore near Calcutta presented to BMNH by Mr. G.A.J. Rothney in 1882] / Dacca forcipata Putz H.E.Andrewes det.; 1 ♀ (MNHN): India or. Calcutta; 2 exs. (MNHN): "Ex Musæo Chaudoir", without further data; 2 exs., one of them incomplete (BMNH, MBCB): Ind. Mus. Tinpahar nr. Raimahal Bengal 7-VII-09. Annandale / at light / Indian Mus. Calcutta / H.E.Andrewes Coll. B.M. 1945-97.; 3 exs. (BMNH, MBCB): Haldibari Cooch Behar 12-14 Oct. 1930 At light H Stevens / H Stevens Coll. B.M.1961-465. / CLIVINA (Dacca) forcipata (Putzeys 1861 [sic]) P. Bulirsch det. 2015.

DIAGNOSIS: Frons with a small central pore, clypeus distinctly more protruding than clypeal wings, antennomeres elongate, maximum width of the elytra behind middle, elytral striae one and two joining at the setigerous basal tubercle, pleura covered with rough irregular short wrinkles, and pronotum with the basal part of the disc laterally protruding posteriorly at declivity as bulge-like vault over basal constriction (lateral view), and clypeus and clypeal wings margined. Distinguished from the two other species by the wider head, the globose eyes, the different form of the mentum, the anteriorly slightly diverging margin of the pronotum, the missing striole of the elytron, and differences of the aedeagus.

REDESCRIPTION: Measurements. Body length 4.74–6.33 mm ($\bar{x}$: 5.52 mm), width 1.42–1.59 mm ($\bar{x}$: 1.46 mm), ratio length/width of pronotum 0.87–1.01 ($\bar{x}$: 0.96), ratio length/width of elytra 2.07–2.22 ($\bar{x}$: 2.16), n = 10.

Colour and surface. Piceous, glossy; legs testaceous, antennae, palpi, and tarsalia fulvous.

Head (Fig. 4). Five sixths of width of pronotum. Clypeus slightly and regularly excised anteriorly, more protruding than clypeal wings, separated from rounded and slightly convex clypeal wings by distinct angled notches, clypeal wings separated from supraantennal plates by

obtuse notches, supraantennal plates wide, vaulted, margins reflexed, prolonged posteriorly into supraorbital carina; clypeus with raised rectangular field at middle, separated from frons by not deep but sharp transverse furrow; frons smooth, with central short suboval pore at middle, with two small pores at each side anteriorly, frons and clypeus separated from supraantennal and supraorbital plates by broad deep furrows, each furrow with deep longitudinal pit between supraantennal plate and clypeus, with raised lateral carinae at posterior eye level. Neck constriction distinct, composed of transverse punctures. Eyes globose, protruding hemispherical, genae short, carinate posteriorly. Antenna with segments five to ten elongate (L/W 1.26), densely pubescent from segment three onwards, reticulation of scapus with suboval fields. Labrum pentagonal, distinctly protruding at middle, nine setose. Mandible conspicuously long, falcate. Lateral margins of the mentum reflexed, with flat carina in middle, epilobes wide, not projecting as far as medial tooth, obtuse angled antero-laterally, regularly convex anteriorly, surface with longitudinal flat rugae.

Pronotum (Fig. 7). Slightly convex on disc (lateral view). Distinctly convex in frontal view. Outline quadrate, about as wide as long. Lateral margin straight, slightly diverging anteriorly. Anterior angles rounded off by reflexed lateral margin, moderately protruding anteriorly. Reflexed lateral margin subcrenulate, margin running from posterior angle to base as a slightly convex line. Lateral channel distinct from anterior angles to posterior angle. Anterior setigerous puncture situated in marginal channel, posterior puncture separated from channel by diameter of pore. Posterior angle marked as obtuse tooth. Anterior margin slightly excised. Anterior transverse line moderately wide, not reaching anterior angles, reaching anterior margin. Median line wide, joining with anterior transverse line, fine basally, joining with basal constriction. Basal constriction of moderate size, flange with sharp carina. Disc glossy, covered with rough coriaceous wrinkles, with few scattered punctures, and reticulation laterally and towards base; basal part of disc prolonged posteriorly and laterally, protruding at declivity as bulge-like vault over basal constriction (lateral view).

Elytron. Slightly transversally depressed in anterior third (lateral view), cylindrical, sides straight, indistinctly diverging posteriorly, maximum width slightly behind middle. Marginal channel moderately wide, continuing over rounded humerus up to level of fourth stria, joining stria four at base, series of umbilical setigerous punctures not interrupted, punctures of same short distance. Reflexed margin nearly smooth. Humeral tooth distinct. Striole vestigial, represented by short impunctate sulcus at base. At basal declivity with distinct tubercles at intervals two and three, at interval two with setigerous puncture, at interval four with small tubercle. Striae one and two joining at basal tubercle, three free at base, four joining with five and lateral channel, all striae moderately deep, punctate-striate. Intervals moderately convex, distinctly convex laterally, interval eight carinate, seven carinate at humerus. Interval three with four setigerous punctures, all approaching stria three. Surface of intervals glossy.

Hind wings fully developed.

Lower surface. Pleura with rough irregular short wrinkles. Abdominal sternites with small punctures laterally, smooth at middle, last visible sternite laterally with the two setae widely separated, in the male with oval transverse oriented punctures, in females smooth at middle.

Legs. Protibia distinctly sulcate, with indistinct irregular reticulation. Mesotibia with distinct preapical spine furnished with a strong seta.

Male genitalia (Fig. 10). Median lobe in dorsal view moderately slender, straight in basal half, distinctly angled at middle (angle around 117°), acuminated towards apex; slightly turned ventrad in lateral view. Internal sac with small bunch of bristles apically. Parameres moderately arcuate, somewhat distorted, each with three setae arising at apex.

Female genitalia (Fig. 13). Coxostylus slender, regularly broadened to base, slightly broader directly at base, distinctly curved, acute at apex, with nematiform setae distributed as follows: a large slender one and a large broad one at middle, five of moderate size in basal half, eight shorter, fine ones in basal half, five of them situated laterally. One SSO apically.

Variation. In few of the specimens the elytra are not as much dilated posteriorly. This is also true for one of the paralectotypes. Specimens from Haldibari show more structured pronotal pleura.

DISTRIBUTION: Known from northeastern India (Calcutta, Tinpahar, Haldibari) and Bangladesh (Dhaka).

The material mentioned in ANDREWES (1928, 1929) from Sri Lanka (Kotte near Colombo) was not examined; according to ANDREWES (1928: 150) it should be deposited in the "Colombo Museum".

***Clivina* (*Dacca*) *boreri* sp.n.**

(Figs. 2, 5, 8, 11, 14)

TYPE MATERIAL: **Holotype** ♂ (NHMB): "NEPAL, 22.-26.5.1990, Chitwan N.P. Saura [= Sauraha], S.Bílý leg." [white, printed]. **Paratypes**: 4 ♀♀ (NHMB, MBCB), same data as holotype; 1 ex. (BMNH): "I. 8. IX. 17 Among Dabhi Rarhi and Batri roots Pusa, Haq. Coll." / "Agric. Res. Inst. Pusa." / "H.E.Andrewes Coll. B.M.1945-97." [all labels white, printed]; 1 ♀ (ETHZ), same data but with additional label: "Clivina forcipata Putz. 7.10.1930 H.E.Andrewes det." [white, handwritten and printed]; 1 ♂ (BMNH): "India" / "Bowring. 63.47*" [white, printed]; 2 ♂♂, 1 ♀, 3 exs. (BMNH), same data but with additional label: "Clivina forcipata Putz. H.E.Andrewes det." [white, handwritten and printed]; 1 ex. (BMNH): "India" / "Bowring 63.47." / "Clivina forcipata H.E.Andrewes det."; 1 ex. (BMNH), with white labels, handwritten: "India" / "Clivina forcipata Putz." / printed: "Bowring. 63.-47.*" / "Ex coll. Brit. Mus." / "Figured specimen" / "H.E.Andrewes Coll. B.M.1945-97." [all labels white, handwritten]; 1 ex. (BMNH): "17.VII.15. At Lamp PUSA BIHAR N.B." / "Agric.Res. Inst. Pusa" / "H.E.Andrewes Coll. B.M.1945-97." [all labels white, printed and handwritten]; 1 ex. (BMNH): "Pusa Bihar G.P.Pillai coll. 30.8.1926" / "Agric.Res. Inst. Pusa" / "H.E.Andrewes Coll. B.M.1945-97." / "Clivina forcipata Putz." [all labels white, printed and handwritten]; 1 ex. (BMNH), same data but with additional label: "9.VII.15 D.P.S."; 1 ex. (BMNH), with additional label: "J.Bahadur 21.VIII.15."; 2 exs. (BMNH), with additional label: "3.VII.15 D.Nandan"; 1 ♂, 1 ex. (BMNH), with additional labels: "17.VII.15 N.B." / "F. van Emden Bequest. B.M.1960-129." / "Gesch. 8.1938 von Andrewes" / "Dacca forcipata Putz" / "Clivina forcipata Putz. H.E.Andrewes det."; 1 ex. (BMNH): "Pusa" / "Agric.Res. Inst.Pusa" / "H.E.Andrewes Coll. B.M.1945-97." [all labels white, printed]; 1 ex. (BMNH): "Pusa Behar At Light 6.07 H.M.L." / "Agric.Res. Inst.Pusa" / "H.E.Andrewes Coll. B.M.1945-97." [all labels white, printed and handwritten]; 1 ex. (BMNH): "Pusa India At Light 2110" / "Dacca forcipata Putz. Compared with type H.E.A." / "H.E.Andrewes Coll. B.M.1945-97." [all labels white, printed and handwritten]; 1 ex. (ADCW): "At Light Pusa Bihar U. Bahadur 4.VIII.15." / "Agric.Res.Inst.Pusa" / "COLLECTIO KAREL KULT COLL.A.DOSTAL, 1999" [all labels white, printed and handwritten]; 1 ex. (ADCW): "India" / "Bowring. 63.47*" / "Dacca forcipata Putz. H.E.Andrewes det." / "Ex coll. Brit. Mus." / "COLLECTIO KAREL KULT COLL. A.DOSTAL, 1999" [all labels white, printed and handwritten].

In the holotype, the terminal four antennomeres are missing. In one of the paratypes from Nepal, the right antenna is missing, and in another paratype from Nepal, four tarsomeres of the left middle leg are missing. The relatively rich historical material is in more or less reasonable condition.

DIAGNOSIS: A species with a small central pore on the frons, clypeus distinctly more pronounced than the clypeal wings, margins of the elytra parallel-sided with their maximum width at middle, pleura covered with transversely wrinkled rugae, and pronotum with the basal part of disc prolonged posteriorly and laterally, protruding at declivity as bulge-like vault over basal constriction (lateral view), and margined clypeus and clypeal wings. This species is distinguished from the two other species by stria two of the elytron ending free at the base, the short but distinct striole of the elytron, the moniliform antennomeres, the different form of the mentum, aedeagal differences, and the different setal pattern of the female coxostylus.

Remarks. The mandibles in most of the specimens examined are more slender and sharper than those of *C. forcipata*. To determine whether or not the mandibles of *C. forcipata* are less acute because of individual wear, more and fresh material is needed.

DESCRIPTION: Measurements. Body length 5.52–6.07 mm ($\bar{x}$: 5.71 mm), width 1.43–1.58 mm ($\bar{x}$: 1.50 mm), ratio length/width of pronotum 0.96–0.98 ($\bar{x}$: 0.97), ratio length/width of elytra 2.09–2.27 ($\bar{x}$: 2.16), n = 10.

Colour and surface. Glossy, head and pronotum piceous, elytra ferruginous; legs, palpi and antennae fulvous.

Head (Fig. 5). Three quarters of width of pronotum. Clypeus distinctly excised anteriorly, more protruding than clypeal wings, separated from oval and laterally pointing clypeal wings by distinct emarginated notches, clypeal wings finely reticulated, separated from supraantennal plates by acute-angled notches, supraantennal plates wide, vaulted, margin reflexed, prolonged posteriorly into supraorbital carina; clypeus with raised rectangular field at middle, separated from frons by obtuse transverse furrow; frons smooth, with central short suboval pore at middle, with fine impressed transverse line lateral to pore, frons and clypeus separated from supra-antennal and supraorbital plates by broad deep furrows, each furrow with deep longitudinal pit between supraantennal plate and clypeus, with distinctly raised lateral carinae at posterior eye level, carina medially with strip of irregular reticulation. Neck constriction distinct, composed of transverse punctures. Eyes convex, genae short, slightly carinate posteriorly. Antenna with segments five to ten moniliform (L/W 1.06), densely pubescent from segment three onwards, reticulation of scapus irregularly oval. Labrum pentagonal, distinctly protruding at middle, nine setose. Mandible conspicuously long, falcate, acute. Lateral margins of the mentum reflexed, with distinct sharp carina in middle, epilobes wide, anteriorly projecting as far as medial tooth, right-angled antero-laterally, sinuate anteriorly, surface with longitudinal flat rugae.

Pronotum (Fig. 8). Slightly convex on disc (lateral view). Distinctly convex in frontal view. Outline quadrate, nearly as long as wide (L/W 0.97). Lateral margins straight, parallel-sided. Anterior angles rounded off by reflexed lateral margin, slightly protruding anteriorly. Reflexed lateral margin subcrenulate, margin running from posterior angle to base as a slightly convex line. Lateral channel distinct from anterior angles to posterior angle. Anterior setigerous puncture situated in marginal channel, posterior puncture separated from channel by nearly two diameters of pore. Posterior angle developed as small obtuse tooth. Anterior margin slightly excised. Anterior transverse line moderately wide, not reaching anterior angles, reaching anterior margin. Median line wide, joining with anterior transverse line, fine basally, joining with basal constriction. Basal constriction of moderate size, flange with sharp carina. Disc glossy, covered with rough coriaceous wrinkles, with few scattered punctures, with reticulation laterally and towards base; basal part of disc prolonged posteriorly and laterally at declivity as pointed obtuse tooth.

Elytron. Straight in anterior third (lateral view), cylindrical, parallel-sided, maximum width at middle. Marginal channel moderately wide, continuing over rounded humerus up to level of fourth stria, joining stria four at base, series of umbilical setigerous punctures not interrupted. Reflexed margin smooth. Humeral tooth distinct. Striole distinct, forming a sharp sulcus at base. At basal declivity with distinct tubercles at intervals two and three, at interval two with setigerous puncture, at interval four with small tubercle. Striae one joining at basal tubercle, two and three free at base, four joining with five and lateral channel, all striae somewhat deepened, punctate-striate. Intervals equally convex, interval eight carinate, seven carinate at humerus. Interval three with four setigerous punctures, all approaching stria three. Surface of intervals glossy.

Hind wings fully developed.

Lower surface. Pleura with transverse wrinkled rugae. Abdominal sternites with small punctures laterally, smooth at middle, last visible sternite laterally with the two setae widely separated, in the male with blunt carina on each side apically, in females with indistinct convex bulge at middle.

Legs. Protibia distinctly sulcate, with distinct longitudinal reticulation. Mesotibia with distinct preapical spine furnished with strong seta.

Male genitalia (Fig. 11). Median lobe in lateral view moderately slender, slightly curved in basal half, distinctly angled at middle (angle around 108°), apex more regularly rounded. Internal sac at base with two bunches of fine bristles, with a group of short spines apically. Parameres distinctly arcuate, distorted, the ventral one with three setae at apex and the dorsal one with two long and two minute setae apically.

Female genitalia (Fig. 14). Coxostylus slender, regularly broadened to base, distinctly curved, acute at apex, with nematiform setae distributed as follows: a large and broad one at middle, five of moderate size in basal half, six shorter, fine ones in basal half, two of them situated laterally. One SSO apically.

Variation. The scattered punctures on the disc of the pronotum vary slightly in number.

DISTRIBUTION: Known from Nepal and India (Bihar).

ETYMOLOGY: The species is dedicated to Dr. Matthias Borer (NHMB), who supports my work constantly and made the material from Nepal available for study.

***Clivina* (*Dacca*) *ursulae* sp.n.**

(Figs. 3, 6, 9, 12, 15)

TYPE MATERIAL: **Holotype** ♂ (MBCB): "Sri Lanka, S Rekawa E of Tangalle, 4mNN 6°03'43"N 80°52'21"E, local collector lg., 05.01.2018" [white, printed]. **Paratypes**: 1 ♂, 2 ♀♀ (MBCB), same data as holotype; 1 ♂ (ADCW): "Kayts,1971 Ceylon P.Kandulawa" [white, printed] / "COLLECTIO KAREL KULT COLL.A.DOSTAL, 1999" [white, printed] / "Cliv. (Dacca) forcipata Putz. det. Dr. A. Dostal 1999" [white, handwritten and printed].

In one of the female paratypes, the left hind tibia and tarsomeres are missing.

DIAGNOSIS: Maximum width of the elytra behind middle, elytral striae one and two joining at the setigerous basal tubercle, and pleura covered with moderately rough wrinkles. Distinguished from the two other species by the clypeus with the clypeal wings protruding as far as the middle part, the finely reflexed margin of the clypeus and clypeal wings, the longitudinal central sulcus at middle of the frons, the two larger flat sulci antero-laterally on the frons, the absence of a bulge-like vault at base of the pronotum, the oblong elongate antennomeres, the different form of the mentum, differences of the aedeagus, and a different setal pattern in the female coxostylus.

DESCRIPTION: Measurements. Body length 5.41–6.25 mm ($\bar{x}$: 5.85 mm), width 1.41–1.56 mm ($\bar{x}$: 1.49 mm), ratio length/width of pronotum 0.99–1.05 ($\bar{x}$: 0.98), ratio length/width of elytra 2.15–2.28 ($\bar{x}$: 2.21), n = 5.

Colour and surface. Piceous, glossy; legs, palpi and antennae testaceous.

Head (Fig. 6). Three quarters of the width of pronotum. Clypeus indistinctly excised anteriorly, as protruding as clypeal wings, separated from rounded and obtuse-angular clypeal wings by small notches, clypeal wings separated from supraantennal plates by obtuse-angled notches, clypeus and clypeal wings with finely reflexed margins, supraantennal plates wide, vaulted, margin reflexed, prolonged posteriorly into supraorbital carina; clypeus with raised rectangular field with bulge at middle, separated from frons by not deep but sharp transverse furrow; frons finely wrinkled, with central longitudinal sulcus at middle, laterally with two larger flat sulci

anteriorly, frons and clypeus separated from supraantennal and supraorbital plates by broad deep furrows, each furrow with deep longitudinal pit between supraantennal plate and clypeus, with sulcus and raised lateral carinae at posterior eye level, with supraorbital furrow continuing on frons for a short distance. Neck constriction distinct, composed of transverse punctures. Eyes convex, genae short, indistinct. Antenna with segments five to ten oblong elongate (L/W 1.46), densely pubescent from segment three onwards, scapus with distinct longitudinal reticulation. Labrum slightly pointed at middle, nine setose. Mandible moderately elongated, falcate. Lateral margins of the mentum reflexed, with flat carina in middle, epilobes wide, not projecting as far as medial tooth, right-angled antero-laterally, nearly straight anteriorly, surface nearly smooth.

Pronotum (Fig. 9). Slightly convex on disc (lateral view). Distinctly convex in frontal view. Outline quadrate, about as long as wide (L/W 0.98). Lateral margin straight, with indistinct slight contraction in anterior third. Anterior angles rounded off by reflexed lateral margin, distinctly protruding anteriorly. Reflexed lateral margin smooth, margin running from posterior angle to base as a distinctly convex line. Lateral channel distinct from anterior angles to posterior angle. Anterior setigerous puncture situated in marginal channel, posterior puncture separated from channel by diameter of pore. Posterior angle marked as obtuse tooth. Anterior margin regularly excised. Anterior transverse line moderately wide, not reaching anterior angles, reaching anterior margin. Median line wide, joining with anterior transverse line, fine basally, joining with basal constriction. Basal constriction of moderate size, flange with narrow carina. Disc glossy, covered with few wrinkles, laterally with group of punctures behind middle, laterally with extended reticulation, basal part of disc regularly rounded.

Elytron. Slightly transversally depressed in anterior third (lateral view), cylindrical, sides straight, indistinctly diverging posteriorly, maximum width behind middle. Marginal channel moderately wide, continuing over rounded humerus up to level of fourth stria, joining stria four at base, series of umbilical setigerous punctures not interrupted, punctures of same short distance. Reflexed margin nearly smooth. Humeral tooth sharp. Striole invisible (magnification 160 ×). At basal declivity with distinct tubercles at intervals two and three, at interval two with setigerous puncture, at interval four with small tubercle. Striae one and two joining at basal tubercle, stria three free at base, four joining with five and lateral channel, all striae less deep, punctate-striate. Intervals somewhat flattened, interval eight carinate, seven carinate at humerus. Interval three with four setigerous punctures, all approaching stria three. Surface of intervals glossy.

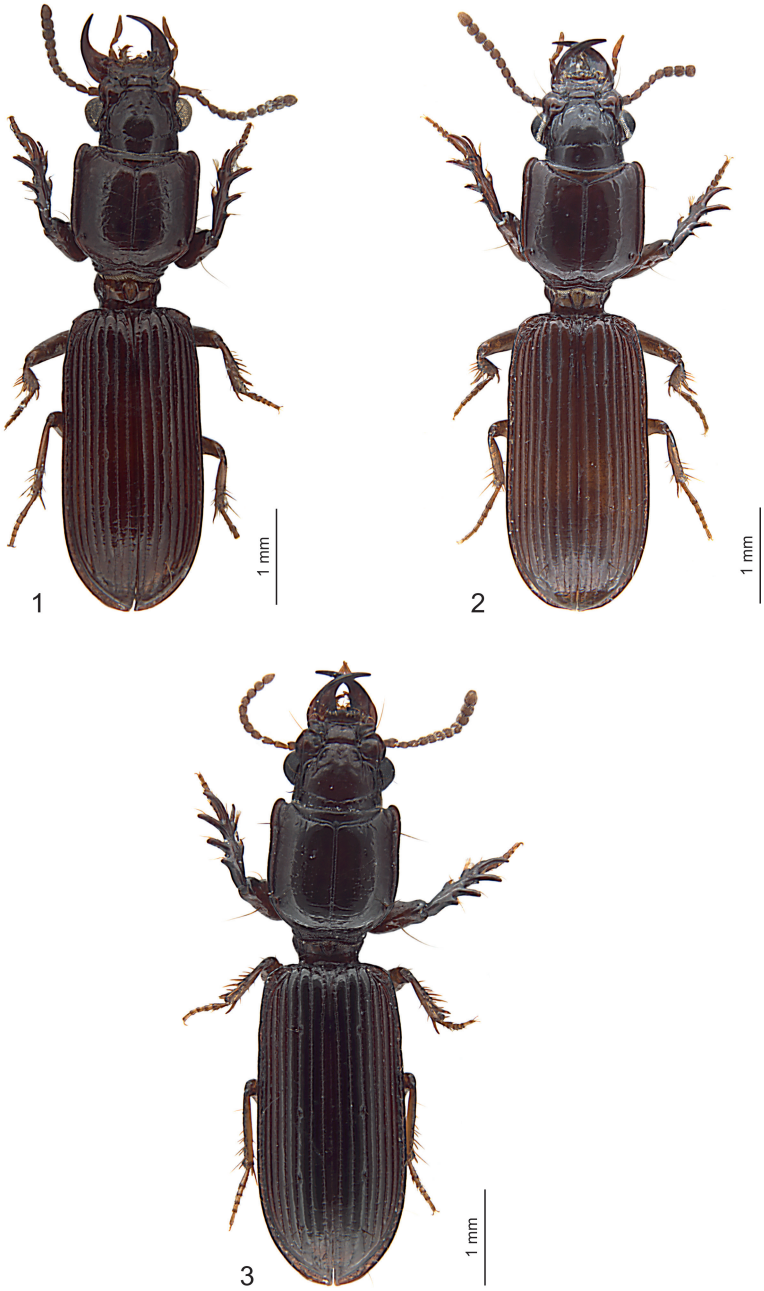
Hind wings fully developed.

Lower surface. Pleura with moderately rough wrinkles. Abdominal sternites with small punctures laterally, smooth at middle, last visible sternite laterally with the two setae widely separated, in males glossy at middle, in females with few transverse wrinkles at middle.

Legs. Protibia distinctly sulcate. Mesotibia with distinct preapical spine furnished with a strong short seta.

Male genitalia (Fig. 12). Median lobe in lateral view moderately slender, distinctly angled at middle (angle around 110°), slightly thickened in apical quarter, acuminated to apex. Internal sac with one small bunch of bristles basally. Parameres moderately arcuate, somewhat distorted, with distinct apophyses, ventral one with two setae of moderate length, dorsal one with two moderately long setae and one minute seta.

Female genitalia (Fig. 15). Coxostylus slender, regularly broadened to base, distinctly curved, acute at apex, with nematiform setae distributed as follows: a large and broad one at middle, five of moderate size in basal half, four short fine ones in basal half, with one minute SSO apically (400 ×).



Figs. 1–3: *Clivina* (*Dacca*) ssp., habitus, males; 1) *C. forcipata*, lectotype; 2) *C. boreri*, holotype; 3) *C. ursulae*, holotype.

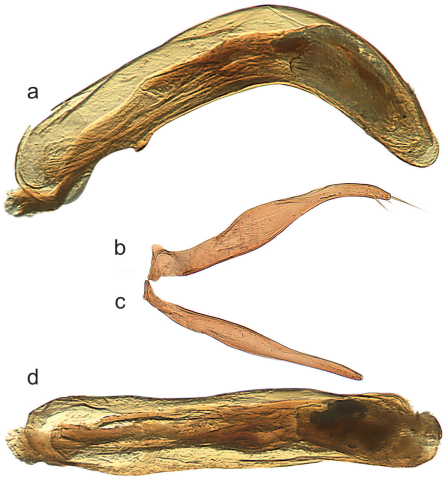
Figs. 4–9: *Clivina* (*Dacca*) spp.; 4–6) head, dorsal view; 4) *C. forcipata*, lectotype; 5) *C. boreri*, holotype; 6) *C. ursulae*, holotype; 7–9) pronotum, dorsal view; 7) *C. forcipata*, lectotype; 8) *C. boreri*, holotype; 9) *C. ursulae*, holotype.

Variation. The anterior margin of the clypeus varies from indistinctly excised to nearly straight. The lateral margin of the elytron shows slight subundulation in two specimens.

DISTRIBUTION: Known from the type locality (coastal lagoons in the very south of Sri Lanka, collected at light) and from the very north of Sri Lanka.

Specimens of *C. forcipata* mentioned in ANDREWES (1928, 1929) from Sri Lanka (Kotte) might as well belong to *C. ursulae*.

ETYMOLOGY: The species is dedicated to my wife Ursula, who actively supported my work during our trip to Sri Lanka.



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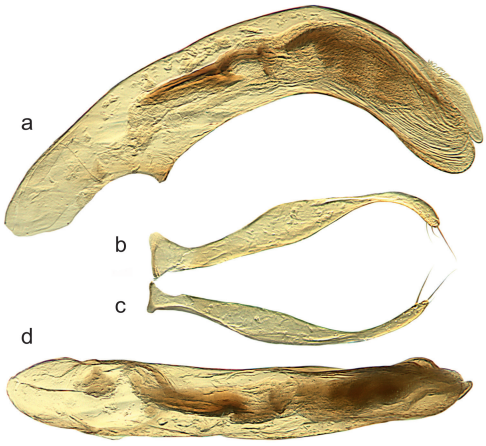

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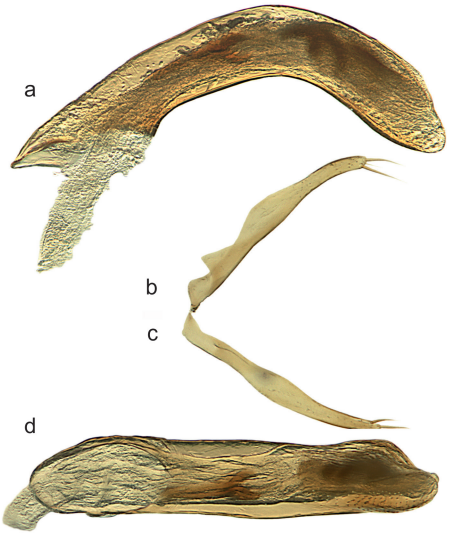

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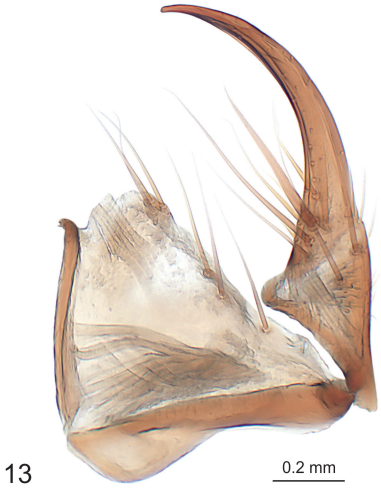
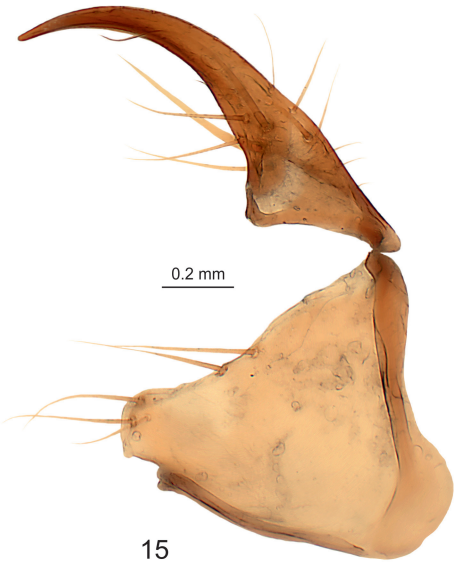
Figs. 10–12: *Clivina* (*Dacca*) spp., male genitalia, dorsal view of aedeagus (a) and parameres (b, c), lateral view of aedeagus (d); 10) *C. forcipata*, lectotype; 11) *C. boreri*, holotype; 12) *C. ursulae*, holotype.





Figs. 13–15: *Clivina* (*Dacca*) spp., female coxostyli (gonopod IX) and laterotergite IX (epipleurite IX); 13) *C. forcipata*, specimen from Calcutta; 14) *C. boreri*, paratype; 15) *C. ursulae*, paratype.

Figs. 16–17: Habitat of *Clivina* (*Dacca*) *ursulae*, Sri Lanka, Rekawa near Tangalle; 16) muddy bank of a pond between the lagoons and the sea shore; 17) microhabitat with open spaces between the vegetation. Photographs by the author.

Key to the species of *Clivina* subg. *Dacca*

1 Elytra slightly diverging posteriorly, maximum width slightly behind middle (Figs. 1, 3); stria one and two joining at the setigerous basal tubercle of the elytron; striole of elytron missing 2

– Elytra parallel-sided, maximum width at middle (Fig. 2); stria one joining with setigerous basal tubercle of the elytron, stria two ending free at base; striole short but distinct; length 5.52–6.07 mm ..... ***boreri***

2 Eyes globose, hemispherical, protruding; width of head five sixth of width of pronotum; frons with short oval central pore and a small pore at each side anteriorly (Fig. 4); clypeus distinctly more protruding than clypeal wings; clypeus and clypeal wings not margined; pronotum with basal part of disc prolonged posteriorly and laterally, protruding at declivity as bulge-like vault over basal constriction (lateral view); length 4.74–6.33 mm..... ***forcipata***

– Eyes convex; width of head three quarters of width of pronotum; frons with elongated central sulcus and a sulcus-like impression at each side anteriorly, which is longer than the central one (Fig. 6); clypeus as protruding as clypeal wings; clypeus and clypeal wings with fine reflexed margins; pronotum with basal part of disc posteriorly without bulge-like vault; length 5.41–6.25 mm ..... ***ursulae***

Discussion

It was noted by ANDREWES (1929) that *Clivina forcipata* resembles the *C. lobata* species group, e.g., in size, shape of pronotum and elytra, distance of anal setigerous punctures, and the pre-apical spur on the middle tibia being furnished with a seta. However, the labrum, mentum, mandibles, margins of the pronotum and elytra including the elytral base, and the form of the aedeagus are clearly different.

The differences between *C. forcipata* and *C. boreri* are apparent, but *C. ursulae* is much more distinct. *Clivina forcipata* and *C. boreri* might represent sibling species; such small differences among two or more species are not uncommon and have been already demonstrated in the genus *Clivina*, e.g., among the *C. heterogena* group from Australia (BAEHR 2015), or between the two Palearctic species *C. fossor* (LINNAEUS, 1758) and *C. collaris* (HERBST, 1784).

There is relatively little information available regarding the way of life or the habitat. A few of the specimens were collected at light (label documentation or personal observation). *Clivina ursulae* was collected on the muddy bank of a large pond (Fig. 16). The pond is located between lagoons and the sea shore and is often used by water buffaloes. The mud is partly covered with vegetation, leaving open muddy spaces (Fig. 17). Beside Staphylinidae and Hydrophilidae, specimens of *Dyschirius* BONELLI, 1810 (Carabidae: Scaritinae) were also observed. In the adjoining meadows, *Scarites ceylonicus* CHAUDOIR, 1886 (Carabidae: Scaritinae) was found. The region, including the microhabitat discussed, was flooded in 2004 by a tsunami, but seems to have been well repopulated by the ground beetles mentioned.

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References

ANDREWES, H.E. 1928: A catalogue of the Carabidae of Ceylon. – Spolia Zeylanica XIV: 135–195.

ANDREWES, H.E. 1929: The fauna of British India, including Ceylon and Burma. Coleoptera, Carabidae, Vol. I, Carabinae. – London: Taylor & Francis, 431 pp.

ANDREWES, H.E. 1930: Catalogue of Indian Insects. Part 18, Carabidae. – Calcutta: Government of India, Central Publication Branch, 389 pp.

BAEHR, M. 2015: Revision of the Australian Clivinini 2. The *ambigua*-, *bataviae*-, *bullata*-, *cava*-, *emarginata*-, *heterogena*-, *impressipes*-, and *sloanei*-groups of the genus *Clivina* Latreille, the new genus *Rubidiclivina*, and additions to the 1st part (Coleoptera, Carabidae, Scaritinae). – Entomologische Blätter und Coleoptera 111: 59–446.

BALKENOHL, M. 2001: Key and catalogue of the tribe Clivinini from the Oriental Realm, with revisions of the genera *Thliboclivina* Kult, and *Trilophidius* Jeannel (Insecta, Coleoptera, Carabidae, Scarititae, Clivinini). – Sofia, Moscow: Pensoft Publ. (Pensoft Series Faunistica 21), 83 pp.

BALKENOHL, M. 2017a: Revision of the genus *Orictites* Andrewes (Coleoptera, Carabidae, Scaritinae, Clivinini). – Contributions to Natural History 35: 1–66.

BALKENOHL, M. 2017b: *Orictites* Andrewes, 1931, from South East Asia: Second part of the revision with descriptions of five new species and update of the identification key to the species (Coleoptera: Carabidae: Clivinini). – Belgian Journal of Entomology 57: 1–21.

BALKENOHL, M. 2018: Notes on Oriental Clivinini and the description of two new species (Coleoptera: Carabidae: Clivinini). – Linzer biologische Beiträge 50 (1): 197–215.

BALKENOHL, M. 2020: A genus in disguise. Revision of the genus *Salcedia* Fairmaire, 1899 with descriptions of nine new species (Coleoptera, Carabidae, Scaritinae, Salcediina). – ZooKeys 901: 1–81.

CSIKI, E. 1927: Carabidae: Carabinae I. – In Schenkling, S. (ed.): Coleopterorum Catalogus, Part 91. Berlin: W. Junk, 553 pp.

CSIKI, E. 1933: Carabidae: Carabinae III, Corrigenda et Addenda. – In Schenkling, S. (ed.): Coleopterorum Catalogus, Part 127. – Berlin: W. Junk, pp. 623–641.

DEUVE, T. 1993: L'abdomen et les genitalia des femelles de Coléoptères Adephaga. – Mémoires du Muséum national d'Histoire naturelles 155: 1–184.

DOSTAL, A. 2012: Three new species of *Clivina* Latreille, 1802 (Coleoptera: Carabidae: Scaritinae: Clivinini) from Asia. – Zeitschrift der Arbeitsgemeinschaft Österreichischer Entomologen 64: 33–44.

DOSTAL, A. & BULIRSCH, P. 2016: Two new species of the *Clivina semicarinata* group (Coleoptera: Carabidae: Scaritinae) from Asia, with notes on other species of this group. – Zeitschrift der Arbeitsgemeinschaft Österreichischer Entomologen 68: 65–75.

KULT, K. 1951: Revision of the genus *Clivina*, Latr., from Oriental Region (Col. Carabidae). – Časopis Československé společnosti entomologické 48: 16–32.

LORENZ, W. 2005: Systematic list of extant ground beetles of the world (Insecta Coleoptera "Geadephaga": Trachypachidae and Carabidae incl. Paussinae, Cicindelinae, Rhysodidae), second edition. – Tutzing: W. Lorenz, 530 pp.

LORENZ, W. 2019: CarabCat: Global database of ground beetles (version Oct 2017). – In Roskov,Y. et al. (eds.): Species 2000 & IT IS catalogue of life, 2019 Annual Checklist. Species 2000. – Leiden: Naturalis. – www.catalogueoflife.org/annual-checklist/2019.

PUTZEYS, J. 1863: Postscriptum ad Clivinidarum monographiam atque de quibusdam aliis. – Mémoires de la Société Royale des Sciences de Liége 18: 1–78, pls. I–II.

PUTZEYS, J. 1867: Révision générale des Clivinides. – Annales de la Société Entomologique de Belgique X [1866]: 1–242.

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