

Colydiinae (Coleoptera: Zopheridae) of Socotra Island

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Abstract. The Colydiinae (Zopheridae) of Socotra Island were studied. Three species are recorded: *Sprecodes socotrensis* sp. nov. and *Lasconotus hajeki* sp. nov. are described and illustrated, and *Synchita africana* (Grouvelle, 1905) is reported from Socotra Island for the first time.

Key words. Coleoptera, Zopheridae, Colydiinae, *Sprecodes*, *Lasconotus*, taxonomy, new species, new record, Yemen, Socotra

Introduction

The island of Socotra is situated 240 km east of the Horn of Africa and 380 km south of the Arabian Peninsula. Politically, it belongs to the Republic of Yemen. Its continental, non-volcanic origin and the long isolation resulted in a high degree of endemism. For example, 37% of the plant species are endemic (MILLER & MORRIS 2004). So far, no published data about the Colydiinae from this island have become available. Recent comprehensive explorations and thorough collecting by Czech entomologists revealed three species of Colydiinae, two of them new to science.

Material and methods

Measurements were taken as follows: head width (HW): across maximum width; head length (HL): along midline from anterior margin of clypeus to line connecting posterior margins of eyes (surface of head has to be in a plane perpendicular to optical axis); total length (TL): from apical margin of clypeus to apex of elytra; pronotal width (PW): across maximum width (excluding denticulations); pronotal length (PL): along midline from anterior to posterior margin (surface of pronotum has to be in a plane perpendicular to optical axis); elytral width (EW): across maximum combined width; elytral length (EL): along suture, including scutellum; eye length (EYL): length of eye in dorsal aspect.

The specimens are deposited in the following collections:

- NHMB Naturhistorisches Museum, Basel, Switzerland (Michel Brancucci);
- NHMW Naturhistorisches Museum, Wien, Austria (Manfred A. Jäch);
- NMPC Národní Muzeum, Praha, Czech Republic (Jiří Hájek);

PHCK	Peter Hlaváč collection, Košice, Slovakia;
PCPB	Pavel Průdek collection, Brno, Czech Republic;
PZCW	Petr Zabranský collection, Wien, Austria;
RSCW	Rudolf Schuh collection, Wiener Neustadt, Austria.

Taxonomy

Synchita africana (Grouvelle, 1905)

Material examined. YEMEN: SOCOTRA ISLAND: wadi Ayhaft, 200 m, 12°36.5'N, 53°58.9'E, 7.–8.xi.2010, 1 spec., Jiří Hájek leg. (NMPC).

Comment. The species was described from Equatorial Guinea (former Spanish Guinea) by GROUVELLE (1905) and so far reported also from Senegal and the Democratic Republic of the Congo (POPE 1961). Additional specimens from Gambia, Kenya, Somalia and continental Yemen have been examined (R. Schuh, unpublished data). **First record from Socotra Island.**

Sprecoodes socotrensis sp. nov.

(Figs. 1, 2, 4, 5)

Type material. HOLOTYPE: ♂ (NMPC), “YEMEN, SOCOTRA Island / Al Haghier Mts. / Scant Mt. env./ 12°34.6'N, 54°01.5'E, 1450m / Jiří Hájek leg. 12-13.xi.2010”. PARATYPES (64 spec.): 17 spec. (NMPC, RSCW) same data as holotype; 33 spec. (NMPC, RSCW): same data, but “J. Bezděk leg.”; 14 spec. (PHCK, RSCW, NHMW): same data, but “P. Hlaváč leg”.

Description. TL: 3.6–4.7 mm. Wingless. Body moderately elongate, parallel-sided (TL/EW: 2.70–2.85), transversely convex, dark brown, legs, antennae and margins of body reddish brown; habitus as in Fig. 1.

Head (HW/HL: 1.70–1.90) broad, moderately to strongly widened in front of eyes, lateral margins convex above antennal insertions, narrowing again to rounded frontal angles; clypeus broad, shortly protruding beyond anterior margin of frons, forming rectangular incision at fronto-clypeal suture; anterior margin of clypeus straight. Dorsal surface of head almost flat; central part of clypeus slightly convex. Sculpture consisting of large, irregularly polygonal to round granules (diameter about 0.05 mm), each bearing a pointed black bristle (length 0.06 mm), sculpture gradually becoming finer anteriorly; anterior third of clypeus matt, without granules; basal part of head capsule with smaller granules, each bearing short, white hair-like seta. Eyes convex with few interfacetal setae, EYL: 0.15 mm. Temples absent; head constricted behind eyes in straight line. Antennal grooves broad, as long as eye. Antenna as long as head width; antennomere 1 not visible in dorsal aspect, 1.6 times as long as wide; antennomere 2 of same width, 1.25 times as long as wide; antennomere 3 narrower (width of antennomere 3 / width of antennomere 2: 0.7 / 1.0), twice as long as wide; antennomeres 4 to 8 of same width (length to width ratios: 4: 1.3; 5: 1.1; 6: 1.0; 7: 1.0; 8: 1.0); antennomere 9 slightly wider than preceding ones, 1.2 times as wide as long; antennomere 10 1.8 times wider than 9, 1.6 times as wide as long; antennomere 11 narrower than 10, 1.1 times as long as wide. Setation of antennomeres 2 to 9 consisting of ring of hair-like setae at mid-length, antennomeres 10 and 11 densely setose. Sculpture of ventral surface of head finely granulate, setation hair-like; basal portion of head smooth, sparsely punctate.

Pronotum broader than long (PW/PL: 1.26–1.42), widest at apical third (i.e. 0.3 PL), 1.6 times wider than head, slightly narrower than elytra (PW/EW: 0.81–0.96), transversely convex. Lateral margins explanate, convex; anterior angles acute (approximately 80 degrees); posterior angles indistinct. Anterior margin convex, slightly denticulate; subapical sulcus distinct. Pronotal base convex, granulate; subbasal sulcus distinct. Disc convex; sculpture like on frons, granules somewhat larger (diameter about 0.06 mm), along midline with some shining, smooth interspaces, granules becoming sparser and smaller with large, shining interspaces on explanate lateral parts. Edge of lateral margins with 11–14 large spines and additional submarginal row of smaller spines; lateral spines each 0.05–0.07 mm long and 0.03–0.04 mm wide, bearing 0.06–0.07 mm long pointed black bristle; sublateral spines each 0.03–0.04 mm long, 0.03 mm wide, bearing similar bristle as lateral ones.

Prosternum (Fig. 2) granulate; granules round, each bearing white hair-like seta; their interspaces larger on central portion, smooth, shiny; anterior margin bulging, smooth and shiny; anterior edge incised with row of punctures. Proepisterna densely granulate near prosternal suture, smooth and shiny near lateral margin.

Scutellum small, pentagonal, matt.

Elytra almost parallel-sided (EL/EW: 1.70–1.85), transversely convex, widest at 0.6 elytral length, apically jointly rounded; outline in lateral aspect straight; apical declivity beginning at 0.75 elytral length; humerus broadly rounded; basal margins denticulate, slightly concave near suture; lateral margins spinose; near humerus spines similar to those on pronotal lateral margin, becoming gradually smaller apicad. Each elytron with nine striae. Scutellar striola absent. Striae regular; striae 6 and 7 almost converging at base; stria 8 not reaching base. Strial punctures round, separated longitudinally by elongate, shiny tubercles; tubercles pointed basad and apicad, becoming gradually higher on base and on lateral and apical declivities, each bearing black bristle like on pronotum. Intervals 1 to 8 flat, smooth, shiny, 1.2–1.5 times wider than striae; interval 9 with row of tubercles near stria 9 (in fact, these are displaced tubercles of stria 9, only coincident with stria 9 on base and apex; stria 9 otherwise only consisting of a row of deep punctures); interval 10 explanate, with loose row of small tubercles. Epipleuron broad at base, narrowing apicad, from the level of ventrite 1 to elytral apex of constant width (as wide as width of metatibia), sparsely set with fine granules bearing white hair-like setae.

Mesoventrite densely granulate. Metaventrite (Fig. 2) short, 3 times as wide as long; surface smooth, shiny, with deep pit along midline at 0.6 of mid-length, sparsely granulate; granules two diameters apart. Relative length of ventrites: 1: 1.8; 2: 1.5; 3: 1.4; 4: 1.0; 5: 1.4. Sculpture on ventrites one to three like on metaventrite; granules more closely set on median portions of ventrites (separated by 1 diameter), particularly dense and almost contiguous on intercoxal process of ventrite 1, bearing white, hair-like seta. Male with ventrites 1 to 4 sparsely granulate like metaventrite; ventrite 3 and 4 each with transverse zone of large pores (diameters approx. 0.025 mm); ventrite 5 matt.

Legs short; femora shortly protruding over lateral margins of body; tibiae oval in cross-section; outer edge of tibiae finely granulate, set with white bristles; remaining surface of tibia with fine white hair-like setae. Tarsomeres 1 to 3 short, similar in length, tarsomere 4 1.5 times as long as 1 to 3 combined. Claws simple, dilated at base.

Male. Aedeagus (Figs. 4, 5) elongate, parallel-sided (length 0.65 mm; length to width ratio: 4.7). Parameres 1.15 times longer than phallobase, narrowed apicad, flat in lateral aspect, slightly bent ventrad in apical third. Penis comparatively short, 0.7 times of total length of aedeagus, narrowly rounded at tip.

Female. Abdominal ventrites 1 to 4 sparsely granulate like metaventrite; ventrite 3 and 4 without pores.

Variability. The development of lateral pronotal and elytral spines is subject to certain variability. In some specimens the spines are rather in the shape of denticles, particularly on elytra. Moreover, the body surface is usually encrusted with dirt, partially concealing the shape of lateral spines.

Differential diagnosis. *Sprecodes socotrensis* sp. nov. is a quite distinct species, its closest relationship is to *S. madagascariensis* (Grouvelle, 1902) and *S. insularis* Dajoz, 1994 from Madagascar, because of head widened in front of eyes and hair-like setation. *Sprecodes madagascariensis* and *S. insularis* have a more cylindrical body, pronotum without explanate lateral portions, lateral elytral declivities steeper, humeral calli well developed, wings present and eyes larger.

Etymology. Named in reference to its type locality.

Collection circumstances. The specimens were collected under bark of rotten log of an unidentified tree. It seems to be restricted only to the highest part of the Haghier mountains (J. Hájek, pers. comm.)

Remarks. The genus *Sprecodes* Pope, 1961 was erected to accommodate two species of african colydiines formerly placed in the genus *Caprodes* Pascoe, 1863. POPE (1961) selected *Caprodes ater* Grouvelle, 1904 as type species. Later, DAJOZ (1980, 1994) added three species from Madagascar to this genus.

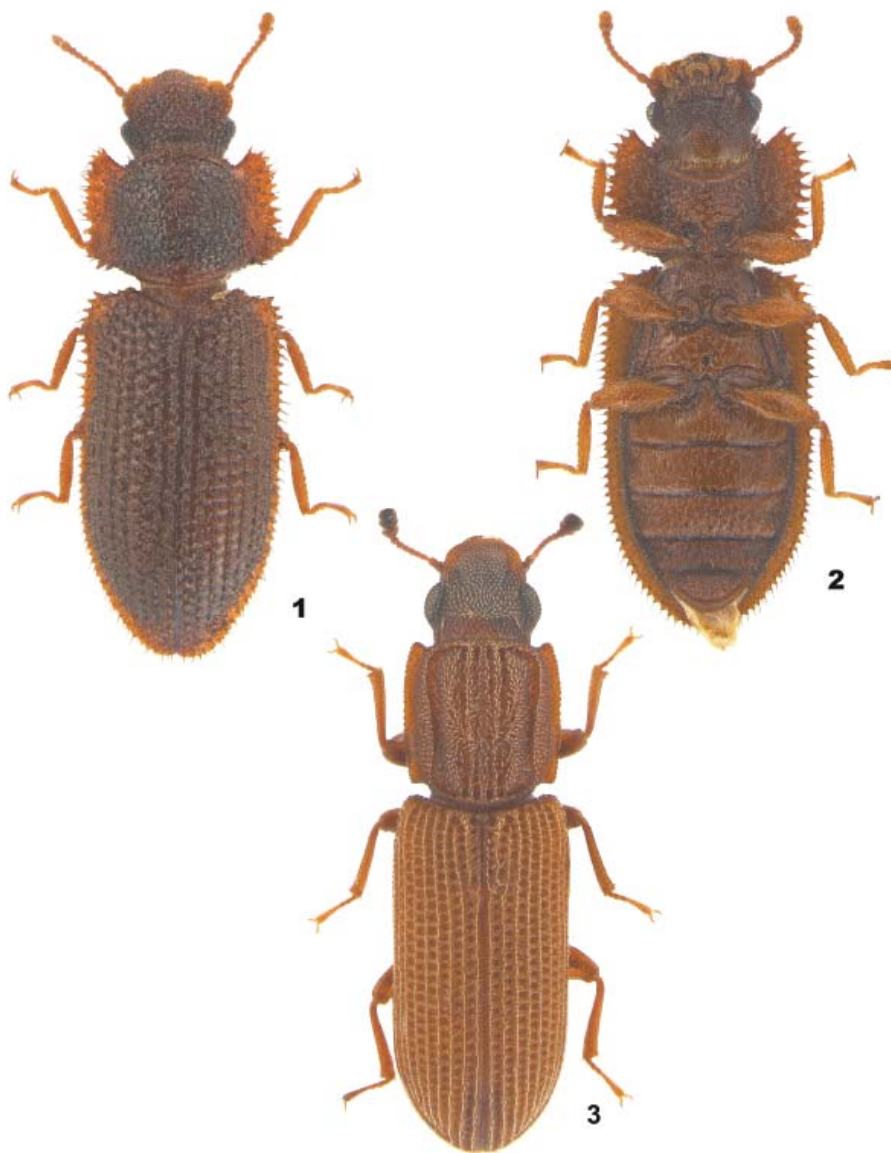
Sprecodes is closely related to *Bolcocius* Dajoz, 1977. The relationships between these genera are still unclear. The only clearly defined character to separate members of both genera is the presence of scutellar striolae. The genus *Bolcocius* is distributed in the Oriental Region with eight described and several undescribed species and in tropical and southern Africa with at least two undescribed species.

Lasconotus hajeki sp. nov.

(Figs. 3, 6, 7)

Type material. HOLOTYPE: ♂ (NMPC), “YEMEN, SOCOTRA Island / Noked plain (sand dunes) / SHARED HALMA vill. env. / 12°21.9'N, 54°05.3'E, 20m / Jiří Hájek leg. 10-11.xi.2010”. PARATYPES (275 spec.): 4 spec. (NMPC, RSCW) same data as holotype; 4 spec. (NMPC): same data but “J. Bezděk leg.”; 2 spec. (PHCK): same data but “P. Hlaváč leg.”; 1 spec. (NMPC): YEMEN, SOCOTRA Island / wadi Ayhaft / 12°36.5'N, 53°58.9'E, 200m / Jiří Hájek leg. 7-8.xi.2010; 7 spec. (NMPC, RSCW): same data but “L. Purchart leg.”; 34 spec. (PHCK, RSCW): same data but “P. Hlaváč leg.”; 7 spec. (NMPC, RSCW): YEMEN, SOCOTRA Island / Dixam plateau / Firmihin (*Dracaena* forest) / 12°28.6'N, 54°01.1'E, 490m / Jiří Hájek leg. 15-16.xi.2010; 6 spec. (NMPC, RSCW): same data but “J. Bezděk leg.”; 1 spec. (NMPC): same data but “L. Purchart leg.”; 3 spec. (NMPC): YEMEN, Socotra Isl. / Firmihin plato, 400-500m / 12°28'46"N, 54°00'89"E / 18-19.vi.2010 / V. Hula & J. Niedobová leg.; 2 spec. (NMPC, RSCW): YEMEN, SOCOTRA Island / Aloove area, HASSAN vill. env. / 12°31.2'N, 54°07.4'E, 221m / Jiří Hájek leg. 9-10.xi.2010; 150 spec. (PHCK, RSCW): same data but “P. Hlaváč leg.”; 3 spec. (NMPC, RSCW): YEMEN, SOCOTRA Island / Zemhon area, 270-300m / 12°20'58"N, 54°06'39"E / 16.-17.6.2010 / V. Hula leg.; 17 spec. (NMPC, RSCW): Yemen, Soqotra Is., 2003 / 5-6.xii., Noked plain / QAAREH (waterfall), 57m / 12°20'10"N, 53°37'56"E / [GPS], David Král

lgt. // YEMEN – SOQOTRA 2003 / Expedition, Jan Farkač, / Petr Kabátek & David Král; 1 spec. (NMPC): Yemen, Soqotra Is., 2003 / 6-7.xii., Noked plain / WADI IREEH, 95m / 12°23'11"N, 53°59'47"E / [GPS], David Král lgt.; 1 spec. (NMPC): Yemen, Soqotra Is., 2003 / 3.xii., Dixam plateau / WADI ZEERIQ, 750m / 12°31'08"N, 53°59'09"E / [GPS], David Král lgt.; 3 spec. (NMPC): Yemen, Soqotra Is., 2003 / 3-4.xii., Dixam plateau / WADI ESGEGO,

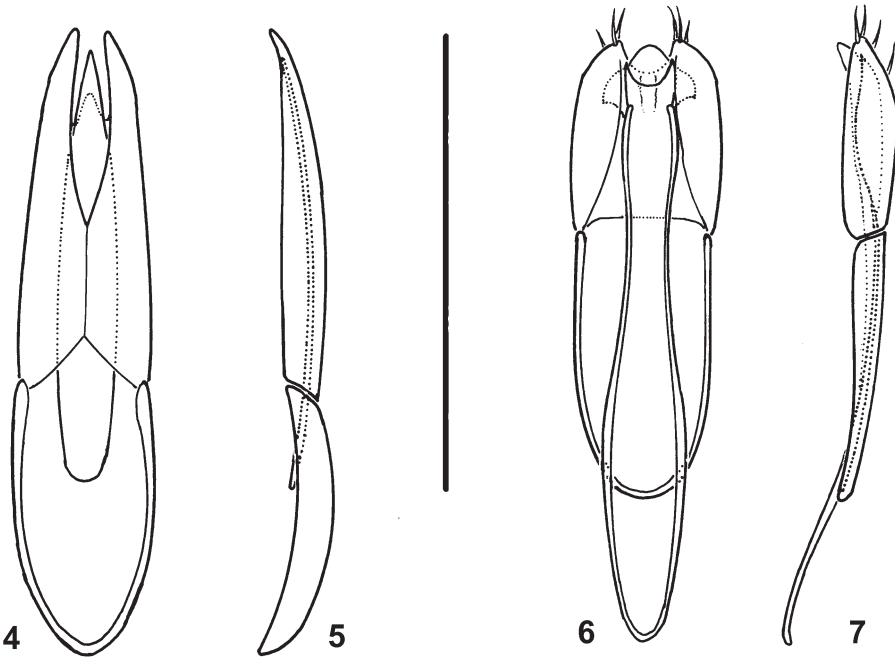


Figs. 1–3. Socotran Colyridae. 1–2. *Sprecodes socotrensis* sp. nov. (1 – habitus in dorsal view; 2 – same in ventral aspect). 3 – *Lasconotus hajeki* sp. nov., habitus in dorsal view.

300m / 12°28'09"N, 54°00'36"E / [GPS], David Král lgt.; 1 spec. (NMPC): Yemen, Soqatra Is. / 24-26.xi.2003 / WADI AYHAFT, 190m / 12°36'38"N, 53°58'49"E / [GPS], David Král lgt.; 1 spec. (NMPC): Yemen, Soqatra Is. / HOMHIL protected area / 28-29.xi.2003, 364m / 12°34'27"N, 54°18'32"E / [GPS], David Král lgt.; 3 spec. (NMPC): Yemen, Soqatra Is. / 21.xi.-12.xii.2003 / HADIBOH env., ca. 10-100m / 12°65'02"N, 54°02'04"E / [GPS], David Král lgt.; 20 spec. (RSCW, PZCW): YEMEN: SOCOTRA / Hadibo 100-300m / leg. Zabranský 1.1993; 2 spec. (PPCB): Yemen: Socotra / Shuab 10.3.2000 / leg. V. Bejček & K. Šťastný; 2 spec. (PPCB): Yemen: Socotra / Wadi Faar / GPS 12.433N; 54.195E / 69m 1.4.2001 / leg. V. Bejček & K. Šťastný.

Description. TL: 2.4–4.0 mm. Body elongate, parallel-sided (TL/EW: 3.15–3.40), transversely convex, reddish brown, elytra, legs, antennae and apical margin of head yellowish brown; habitus as in Fig. 3.

Head (HW/HL: 1.30–1.45) weakly transverse, slightly narrowed in front of eyes to broadly rounded frontal angles; clypeus not separated from frons by a groove or suture; anterior margin of clypeus concave. Dorsal surface of head slightly convex between eyes; central part of clypeus also slightly convex; interocular sulci weak, but distinct, interocular carinae fine, remnants of fronto-clypeal suture visible as two short, oblique sulci between antennal insertions. Sculpture of basal part of frons consisting of large punctures, separated by 0.5 times of their diameters, each bearing recumbent, pointed, squamiform seta (0.025 × 0.005 mm), directed towards a point on base of head; sculpture on clypeus consisting of fine punctures separated by twice their diameters, each bearing seta like on frons, directed to midline, their



Figs. 4–7. Aedeagi: 4–5 – *Sprecodes socotrensis* sp. nov.: 4 – aedeagus, dorsal aspect, 5 – aedeagus, lateral aspect. 6–7 – *Lasconotus hajeki* sp. nov.: 6 – aedeagus, dorsal aspect, 7 – aedeagus, lateral aspect. Scale bar = 0.5 mm.

interspaces shiny; dorsum of basal part of head capsule more or less wrinkled, matt. Eyes large, convex, eye length 0.15 mm. Temples absent; head slightly constricted behind eyes for a short distance; basal part parallel-sided. Antenna 0.8 times as long as head width; antennomere 1 visible in dorsal aspect for apical third, 1.3 times as long as wide; antennomere 2 slightly narrower, as long as wide; antennomere 3 narrower (width of antennomere 3 / width of antennomere 2: 0.7 / 1.0), 1.4 times as long as wide; antennomeres 4 to 8 each of similar length but increasing width (length to width ratios: 4: 0.85; 5: 0.80; 6: 0.75; 7: 0.70; 8: 0.65); antennomere 9 to 11 forming broad club 3 times as wide as preceding ones, antennomere 9 1.8 times as wide as long, trapezoidal; antennomere 10 slightly wider, 2.2 times as wide as long; antennomere 11 slightly narrower than 10, 1.5 times as wide as long, transversely oval. Sculpture of ventral surface of head densely punctate, setation very fine, hair-like.

Pronotum almost quadrate (PW/PL: 0.94–1.02), widest at apical third (i.e. 0.3 pronotal length), 1.2 times wider than head, slightly narrower than or of same width as elytra (PW/EW: 0.94–1.02); disc almost flat; lateral declivities steep; lateral explanate portions narrow (half as wide as protibia). Lateral margins weakly convex anteriorly, almost straight from point of maximum width to base; anterior angles acute (approximately 75 degrees), slightly produced with rounded tip; posterior angles rectangular. Anterior margin straight. Pronotal base convex. Pronotal sculpture consisting of fused tubercles, bearing squamiform seta like on frons; in some places tubercles merged tightly without interspaces, giving an aspect like an uneven punctate surface; setation recumbent, directed to midline on lateral declivities, directed basad on anterior half, and apicad on posterior half of disc. Sublateral carina separating disc from lateral declivity almost parallel to lateral pronotal margin, low but conspicuous, accentuated towards disc by a smooth sulcus, curved inwards anteriorly to form weak apical marginal ridge, curved inwards basally to form basal ridge. Disc with four almost parallel, longitudinal sulci; each sulcus originating apically from deep pit at usual position of subapical sulcus, attenuate at mid-length, deepened again basad, ending in a deep pit at usual position of subbasal sulcus; margins of sulci irregularly delimited by more or less isolated tubercles; ridges between sulci flat, narrow basally (of width of one tubercle there), slightly enlarged apically, connected to apical marginal ridge and to basal marginal ridge, in other words, interrupting subapical and subbasal sulci. Edge of lateral margins finely crenulate.

Prosternum and proepisterna matt, granulate; granules round or transversely wrinkled, bearing white hair-like seta.

Scutellum, pentagonal, matt.

Elytra parallel-sided (EL/EW: 1.85–2.00), transversely convex, apically jointly rounded in semicircular outline; outline in lateral aspect straight; apical declivity beginning at 0.8 elytral length; basal margin concave; lateral margins not explanate, slightly crenulate near humerus, otherwise almost smooth. Each elytron with nine striae. Scutellar striola present. Striae regular. Strial punctures round, separated longitudinally by less than their diameters. Intervals 1 to 9 flat, as wide as strial punctures; each interval with one row of very closely set fine punctures, bearing seta; setae white, recumbent, squamiform, of same shape, but smaller than those on pronotum, each reaching base of the following one, giving an aspect of a white line. Epipleuron inclined, smooth, bordered along inner margin near base, narrowing apicad, not reaching elytral apex. Wings present.

Mesoventrite and metaventrite matt, densely punctured; punctures partly confluent; midline at posterior half impressed. Relative length of ventrites: 1: 2.8; 2: 1.5; 3: 1.2; 4: 1.0; 5: 1.2. Ventrites matt, granulate, with white, hair-like setation.

Legs short; femora shortly protruding over lateral margins of body; tibiae oval in cross-section, enlarged apically, set with fine hair-like setae; outer apical angle with two to four small spines. Tarsomeres 1 to 3 longer than wide, similar in length, tarsomere 4 1.1 times as long as 1 to 3 combined. Claws simple, dilated at base.

Male: Apical margins of apical sternite and tergite regularly rounded. Tegmen (Figs. 6, 7) short, parallel-sided (length 0.5 mm; length to width ratio: 3.2). Parameres 0.8 times as long, and slightly wider than phallobase, fused for more than half of their length, each narrowed towards pointed and setose apex, broad in lateral aspect. Penis long, 1.3 times of total length of tegmen, constricted in middle; its tip arrowhead-shaped, bent ventrad.

Female: Apical margin of terminal sternite with omega-shaped (ω) excision and terminal tergite angulate apically, its tip produced and densely pubescent.

Differential diagnosis. *Lasconotus saudicus* Ślipiński, 1985 is known from the Arabian Peninsula. It differs from *L. hajeki* sp. nov. in its smaller size (TL: 2.2–2.5 mm); absence of sulcus along margin of eye; pronotal sculpture without sulci or deep pits between sublateral carinae, rather smooth with granules reduced to punctures; anterior pronotal angles rectangular, posterior ones blunt; broader elytral intervals and finer striae punctures (see also ŚLIPIŃSKI 1985). The absence of the sulcus along the margin of the eye was not recorded in the species description, but was recognized by examination of the holotype (NHMB).

Etymology. Dedicated to Jiří Hájek (NMPC), collector of this new species.

Collection circumstances. *Lasconotus hajeki* sp. nov. was frequently found under bark of dead *Boswellia elongata* Balf. f. tree (Burseraceae); several specimens were also attracted to light trap (J. Hájek, pers. comm.).

Acknowledgements

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